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# OBSTETRIC STUDIES :

COMPREHENDING

## A TREATISE ON PARTURITION ;

LIKEWISE

THE VARIOUS ACCOMPANYING SYMPTOMS DURING PREGNANCY,  
AND SUBSEQUENTLY TO LABOUR :

WITH

DESCRIPTIVE REFERENCES AND PRACTICAL OBSERVATIONS.



### A SERIES OF PLATES

IS ALSO PUBLISHED AS A SEPARATE WORK, IN TWO CLASSES.

#### CLASS I.

Represents the different Presentations, and Progressive Stages of Natural Labour, by a peculiar Mechanical Process.

#### CLASS II.

Contains a variety of Anatomical Subjects necessary to elucidate the Obstetric Art.

The Book and Plates will together furnish a complete System of Practical Instructions upon the subject treated of ; and it has therefore been thought adviseable to give References to the Tables in this Work, though a distinct publication ; as such References will obviously stamp an additional value upon it in the estimation of those who may become purchasers of both Works, notwithstanding a descriptive INDEX of all the parts is inserted with the Plates.

A smaller proportion of the Plates is published, to which the References in this Work are also applicable, for the use of those who may not choose to be at the expence of purchasing the complete set.

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BY JAMES HOGGEN, SURGEON.

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LONDON:

PRINTED FOR THE AUTHOR,

BY F. VIGURS, 14, YORK STREET, COVENT GARDEN.

1813.



## DEDICATION.

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TO  
THE MASTER ;  
THE COURT OF ASSISTANTS ;  
THE COURT OF EXAMINERS ;  
THE BOARD OF CURATORS OF THE MUSEUM ;  
PROFESSORS OF ANATOMY AND SURGERY, &c.  
OF THE  
ROYAL COLLEGE OF SURGEONS,  
LONDON.

---

GENTLEMEN ;

HAVING been a Member of the late Corporation of Surgeons, and of the College, many years ; permit me the liberty to dedicate this Work for your inspection.

The great benefit mankind have experienced at the hand of the Surgeon, is incalculable. The indefatigable researches and industry

in investigating and discovering the multiplicity of parts composing the human frame, has diffused Anatomical knowledge throughout the known world. Mankind experience this blessing as the first essential towards relieving the afflicted. **MIDWIFERY** being an operative department, more immediately belongs to the Surgeon ; to whom the many improvements in the **Obstetric** art have chiefly been attributed. The great utility of Midwifery in assisting and relieving the female in the perils of child-birth, is now universally acknowledged as an important branch of the **Chirurgical** art ; which art bears the pre-eminence to all others.

I remain, Gentlemen, with great respect,

Your obedient servant,

**JAMES HOGBEN.**

*Berners Street,  
London.*

## P R E F A C E.

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THE art of Midwifery has long deservedly held an eminent station among the acquirements of Medical men. It is an art closely connected with humanity itself, and of the greatest consequence, not only to individuals, but to the community at large.

Experience will continue to elicit improvements; and, that many essential improvements have been made in this branch of practice, the few women who have, of late years, died in child-bed, and the few instances of children being still-born, are sufficient evidence.

The Author is aware that he may be accused of prolixity in some parts, and perhaps of repetitions in others; but, as this Work is intended rather for Students and early Practitioners, than for those who have been enabled to mark the improvements as they arose, he has rather chosen to risk such an accusation, than be blamed for rendering those explanations too circumscribed by adopting a concise style. He has preferred utility to elegance; being convinced that, for those who intend to devote themselves to practical Midwifery, the subject cannot be too replete with useful remarks on the symptoms which may occur. On the pupil's knowledge and skill will depend his future success in life: the loss of one patient in labour will do him more real injury than of twenty by sickness. This must convince him how highly essential it is to attend lectures on the Obstetric art, and at all such labours as are selected for pupils.

The drawings from which these Tables are engraved, were chiefly from the Author's own hand.

The Author communicated his intention of entering upon a work of this kind to Dr. Thomas Denman, then a lecturer on Midwifery, and the writer of a valuable treatise on that subject; who was pleased to encourage the prosecution of a work of such acknowledged utility.

It has been often remarked, that persons unacquainted with drawing, do not readily comprehend sections of prints; or, at least, in the way in which they are generally exhibited to view. The Author's present object is to explain the anatomy of the parts relating to Midwifery, in a manner as clear, plain, and comprehensive, as the nature of drawings will admit of; having avoided superfluity of shades where the parts ought to be represented with perspicuous simplicity, and having blended somewhat of plan with perspective. The different changes and appearances in the embryo, or any thing appertaining to the first principles of utero-gestation, are but slightly noticed. They have been amply and ably discussed by several ingenious authors. The subject treated of here is PARTURITION; to shew the different stages and progress of labour; as well as to illustrate the application and use of the *Forceps* and the *Vectis*.

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# OBSTETRIC STUDIES.

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## INTRODUCTION.

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IN contemplating the wonder-working hand of the great CREATOR of the universe ; who is there but must be inspired with awe and admiration ! How wonderful the production of the most minute of the inanimate part of the creation ! how truly wonderful the production of the animate ! how infinitely wonderful, then, is man ; endowed with intellectual powers, and formed but a step below the angels of light ! When we trace his progress, from an invisible atom to his state of maturity ; what human heart can be restrained within even moderate bounds of adoration of that All-powerful BEING, who watches him with a more than paternal care, from the sowing of the seed to the winter of his days !!!

Justly might the poet say, “ The proper study of mankind is man.” Turn on which side we may, we meet with an inexhaustible source for contemplation. View the admirable proportion and strength of his body ; the formation and exact symmetry of his limbs ; the economy of all the functions of life ; an Omniscience in every motion and every breath is displayed, proclaiming aloud,

“ These are thy glorious works, PARENT of Good !”

Notwithstanding we are formed so near a state of perfection, (yet, in this life,) we are but the creatures of nature, and subject to all the ills of mortality ; among which, the pain and sickness attendant upon women during child-birth are not the least.

To the treatment of particular cases in that time of difficulty and danger, the present Work is chiefly confined.

The principal design is to give an exact representation of the different appearances of the head of the child, as it passes, surrounded by the distended uterus ; shewing the turn it takes, and its change of shape from the resistance of the pelvis and the parts through which it passes ; with the requisite direction of the forceps, as the head advances, by a kind of natural mechanism. This arrangement of all the corresponding component parts, will probably be considered by scientific men as an acquisition of no small importance. It must be allowed, that accurate drawings from nature convey instruction more readily than words alone, and may afford auxiliary elucidation to lectures. As to the various preternatural labours, not requiring instruments, the particular presentation of such may be known by a careful examination of the parts, which must be treated according to the general rules demonstrated at lectures, and laid down by able authors who have written on such cases.

The use of instruments is always, if possible, to be avoided in the practice of Midwifery ; but circumstances may arise to render them necessary ; as in uterine hemorrhages, convulsions, faintings, weakness caused by previous illness, want of assistance till late in labour, cessation of the pains, the contracted size of the pelvis, the head of the child being large or presenting itself too low for the body to be turned without endangering the mother's life : in these cases, it may be necessary to deliver by extracting the head with the forceps ; but if the operator be not accurate in the mode of using this instrument, both mother and child may be lost. Life or death here depends upon judgment or ignorance, care or negligence.

The use of the forceps and vectis not being frequently required, the knowledge of their application consists, in general, more in theory than practice ; instructions for the mode of introducing and management of those instruments are, therefore, the more necessary. Their value is demonstrated, in certain cases, by all lecturers on Midwifery ; but as words cannot convey so forcible an illustration, as prints or drawings representing nature, accompanied with proper directions, these Tables cannot but be of distinguished utility : they may be resorted to at all times to refresh the memory, and enable the operator to become the perfect master of them, to his own great advantage, and the safety of his patients. By a complete knowledge of the use of the forceps and the

vectis, the mind acquires firmness and courage, which are always necessary in the practice of every branch of Surgery: diffidence and timidity may be as prejudicial to the patient, as ignorance and temerity. Knowledge and judgment beget confidence and fortitude, which, when joined to steady, cautious perseverance, will insure success.

An Accoucheur may practise many years without meeting with a case requiring the aid of instruments; but that is not any assurance that one may not occur; and when it does, no time can be lost in the moment of danger. It is then too late to learn their use.

Different authors have recommended forceps of different forms. One prefers those with a lateral curve; another the straight, or having only a single curve; of about eleven inches and a half in length from one extremity to the other; which size is proved to be the safest and the most useful. Whatever kind of forceps the Accoucheur has been most accustomed to, these he will naturally prefer. The blades ought to diminish gradually in thickness from the handle; and if covered with leather, should be made very thin at the end, to facilitate their introduction; if not covered, it is proper that they should be highly polished on the outside. All such instruments ought to be made of well-tempered steel, and the ends properly rounded.

Cases requiring the vectis, are those termed *laborious*; and chiefly such, where the pains are not sufficient to bring the occiput below the pubes.

Authors differ respecting the pre-eminence of the two instruments, as well as about the shape of the forceps. Every practitioner will be partial to that he has been in the habit of using with success; but where two blades can be properly introduced between the child's head and the uterus, the pains having ceased, and the patient suffering under great debility, and where partially turning the head is required, there cannot be any doubt which ought to be preferred. Those who use the vectis, should be provided with more than one; or, at least, two in one; the blade at one end to be wider than the other, and of a different curvature, so that either may be applied, as best suits the case; (*vide TAB. IV.*) On the same principle, more than one pair of forceps may be necessary, as the same size cannot suit every different-sized pelvis. The time, the manner, and the parts, to which the forceps and the vectis are prudently applicable, will be particularly described in the reference to each case in the Tables.

The use of these instruments is, in particular cases, indispensably requisite;

and it is as requisite that the operator should be well acquainted with the mode of applying them ; but at the same time, as has been before observed, they ought never to be resorted to unless there is an absolute necessity. Time ought to be given, where it can. Nature, with common assistance, generally completes her work with the greatest safety.

Some persons unacquainted with the practice of Midwifery, carrying this idea too far, have supposed, that in common natural labours there needs scarcely any assistance at all. But although cases of difficulty may occur, where instruments would be highly improper; yet it is well known, that nature will sometimes be found deficient, or that she will over-act her part, and will require the aid of judicious art; through the want of which, much mischief may ensue and the woman be lost.

A deficiency of nature may shew itself, when the child's head is too large in proportion to the size of the pelvis, or is in an unfavourable position : here the application of the forceps may be necessary. On the contrary, the exertions of nature may be so violent as to cause laceration of the perinæum, if not cautiously prevented, and distress the mother during life. Although this does not take place very frequently to any considerable extent; yet, when it does happen, it can seldom be remedied.

It is also known, that, from some irregular action of the muscular fibres of the uterus, or from more than common pressure of the head of the child, during a severe pain, against some part of the pelvis, the uterus is sometimes ruptured; and, if the midwife does not immediately introduce the hand and extract the child, it must be destroyed, and probably the mother also : it is seldom indeed that the latter survives a ruptured uterus. In some habits, where the woman may have borne many children, or have been subject to frequent miscarriages, skill and experience may be required, to prevent descension (prolapsus, or procidentia) of the uterus.

The retention of the placenta, if not delivered in due time, may, likewise, prove fatal to the mother. Great precaution is also often necessary, to prevent or suppress hemorrhages, even in a natural labour ; as well as to check the impetus of puerperal convulsion. Instruments are seldom used in those cases termed preternatural, yet considerable skill is sometimes required for the preservation of the child.

A man-midwife not in the habit of paying attention to labours in general,

would not be equal to the management of those, accompanied with the greatest danger. In such cases, where two lives may be saved or lost, the utmost exertion of abilities and fortitude is required ; then this art becomes more seriously interesting than any other branch of the Profession.

It is of no small importance, that the patient should be attended by a midwife, in whom she can place confidence. This will compose the mind, and in a great measure allay those fears and alarms, to which all women are by nature more or less subject at these times ; and which, indulged in, increase irritability in the nervous system, and render it more susceptible of convulsive attacks, which too frequently terminate fatally.



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## P A R T I.

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### CHAPTER I.

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#### *Sect. 1.—Of Utero-Gestation.*

BEFORE stating the different kinds of labour, their progress, and manner of treatment, it may be thought expedient that this Work should be accompanied with practical observations on the most material symptoms and complaints, to which women are liable during the state of pregnancy, notwithstanding the subject has been ably treated by others.

The cause and nature of conception, the modern theory of which is pretty generally understood; and the different gradations from childhood to the age of puberty not being essential to the practical part of Midwifery; I therefore shall commence with some of the very numerous symptoms accompanying pregnancy, on the regulating and relieving of which, the well-doing of the lying-in woman will much depend.

By *Pregnancy* is understood, the existence of the foetus in the cavity of the uterus; or the space of time from conception to that of parturition, meaning the full term of gestation; being two hundred and eighty days, or nine calendar months.

Women reckon the commencement of pregnancy immediately after the last menstruation; at which time they are supposed to be more susceptible of impregnation: but it may happen one, two, or three weeks following, and therefore they are often mistaken in their reckoning.

To know whether a woman be pregnant, may sometimes be attended with much difficulty and uncertainty ; yet is oftentimes of the utmost consequence to be ascertained, where illness requires medical aid ; as improper treatment, through want of knowing the true state of the patient, may prove injurious, if not fatal.

Various are the complaints to which women are subject during the state of gestation ; but most of these, by the assistance of judicious medical treatment, may generally be alleviated, and oftentimes removed.

In the first months, the symptoms chiefly proceed from the irritable state of the uterus, with which the stomach, breasts, heart, head, &c. readily sympathize, either by direct or secondary means, and, towards the latter part of gestation, from the bulk and weight of the uterus, as also by its pressure upwards against the stomach and diaphragm, producing dyspnœa and vomiting ;—in the more inferior parts, varicose enlargements of the veins, œdematosus swellings of the thighs, legs, and about the labia pudendi, &c. towards the latter end of pregnancy, occasioned by the iliac veins being compressed, rendering the return of the blood very slow, and thereby the watery part transudes through the coats of the vessels ;—cramp, and paralytic affections, by the uterus compressing the adjacent nerves ;—costiveness, by its pressure on the rectum ;—tenesmus and piles, by the pressure on the sacral vessels ;—strangury, and even a suppression of urine, attended with inflammation, when too long neglected. In full habits, and even in the delicate irritable constitution, blood-letting will in general give relief to most of the complaints attendant on pregnancy ; which may be repeated occasionally, but in small quantities (four or five ounces) in the delicate weakly habit : taking away too much blood at one time, may cause fainting and a separation of the placenta from the uterus, producing miscarriage.

Varicose distension of the veins, in the legs, thighs, and abdomen, during pregnancy, are oftentimes exceedingly troublesome, as they are apt to burst, and discharge great quantities of blood. But to prevent this in a full habit, it may be proper to take blood from the arm, and apply cold water with cloths, ice, or some other cold repellent application of the saturnine kind, to the vessels so distended, by way of causing them to contract ; and, occasionally, a moderate pressure by way of bandage will have its use.

The loss of blood from the rupture of a vein during pregnancy, may not be attended with so much danger as when it happens to be repeated afterwards :

therefore bandages on such parts should be continued a considerable time after delivery.

The bowels ought to be kept in a temperate and regularly open state with medicines the least irritating.

Vomiting, so common to pregnant women, proving obstinate and violent, and not abating with blood-letting and mild stomachic medicines; animal food of all kinds, spirits, and fermented liquors, ought to be avoided. Instances have occurred, where only oatmeal gruel, or such like liquid nutriment, could be taken with impunity, for the space of nine months, the whole time of gestation; which afforded sufficient and the best nourishment,—being retained by the stomach.

Faintings, to which some women are disposed in a morning, we find generally prevented by the supply of some light food of that kind which best suits, and before rising out of bed; this chiefly proceeds from having been the whole night without sustenance. In general terms it may be remarked, that things of a nutritive kind, which the inclination seems disposed for, provided they sit easily on the stomach, are the proper food for those in the state of gestation; as are fruit fully ripe, and vegetables of every kind properly dressed, with a small proportion of animal food. But, on the contrary, whatever promotes or increases retchings, or is found to give uneasiness after being eaten, must be improper; the stomach, being harassed and weakened by sympathetic irritation from the state of the uterus, is prevented from performing the office of digesting the food properly, whereby offensive crudities are produced and lodge in the stomach, either of an acid or alkalescent tendency, increasing the vomiting, and also causing that well-known distressing complaint the heartburn (*cardialgia*).

If the stomach abound too much with acidities, alkalescent medicines are proper; but if it be surcharged with alkali, then acids must be given, and accompanied with some opening medicines. In some instances, where the stomach is loaded with crudities, an emetic may be found beneficial; but in case of a full habit, it will be prudent first to take blood from the arm; and where sickness and heartburn proceed from irritation only, blood-letting will be most likely to give relief, if early applied, either in the strong or weakly: but when relief is not found by any of the preceding means, the sickness continuing with or without pain (after some opening medicine has been administered), opiates in small quantities may be resorted to; a quarter, or the sixth part of a grain of opium taken every

quarter of an hour, or as often as the symptoms require, will be likely to allay the too great irritability of the nervous system.

The irritation, in the early part of pregnancy, causing sickness and heartburn, which, ceasing just before the time of quickening, will return generally a little before labour, from the pressure of the uterus, producing the same symptoms ; blood-letting generally gives relief in either state.

Opiates ought not to be indulged in too frequently ; and the bowels should be kept in an open state at the same time by the use of clysters, as all preparations of opium are ever disposed to create costiveness. But as opium does not agree with every constitution, (and where liquid medicines will stay on the stomach,) the spiritus ætheris compositus may be given as a substitute, from twenty to thirty drops, in a little cold water, and repeated occasionally if the stomach will retain it ; or pills made of the extractum papaveris, may agree when the foreign opium will not ; and in some delicate irritable habits, where opiates taken into the stomach disagree, a plaster of opium applied to the region of the stomach will sometimes be found beneficial ; but this may have a better effect after a few ounces of blood have been taken away.

Where emetics prove useful, they may be taken from time to time when required. Emetics affect the uterus very differently from drastic purges ; the latter irritating the parts contiguous to the uterus, may prove very injurious, and occasion abortion.

Emetics should be cautiously administered in plethoric habits, and also where there is much debility ; for although of great benefit to one person, they may prove the reverse to another. Emetics have been known, in reduced weakly habits, to produce spasmodic apoplexy, even when not pregnant, both in the adult and in children.

Vertigoes are not uncommon to pregnant women, which blood-letting generally relieves.

A real hemiplegia will sometimes happen during pregnancy, of which the delicate habit is as susceptible as the strong full habit ; therefore uterine irritation seems to be the chief cause : all heating things ought to be avoided, and in the full habit, bleeding, and cooling aperient medicines are proper. These symptoms generally disappear after delivery.

Pregnant women are liable to every disease in common with other people ;

colds, coughs, fevers, &c. But there are many of the lower and even of the middling classes of women, who think all their complaints during pregnancy proceed from being in that state, and suppose no relief can be given until they are delivered of their burthen. But every medical man-midwife, who has been any time in practice, knows the reverse to be a fact. Relief, little or much, is to be afforded in most of the complaints, and in every stage, of pregnancy, if judiciously managed; but the sooner it is sought for, the more easily will benefit be found.

Most women during gestation are disposed to be feverish, more or less, with flushings of the cheeks and palms of the hands, which are hot and dry; with restless nights, more particularly towards the latter part of gestation: here, bleeding, saline cooling medicines, and keeping the bowels in a proper state, give relief. The blood during pregnancy is ever found to have a peculiar light-coloured buffy appearance; this happens almost from the beginning, and is occasioned by the increased circulation from temporary irritation. By keeping unpleasant symptoms under, labour will be more easy and safe. Women who are in the state of nature, are not subject to the many complaints attendant on those of a more domesticated, civilized state.

A diarrhoea, during pregnancy, ought not to be neglected; the tenesmus frequently attending, may be the means of miscarriage. This complaint is to be treated nearly as at other times; if it proceed from crudities in the stomach, a gentle emetic of ipecacuanha may be useful; if from acid irritation in the bowels, the mixtura cretacea with rhubarb will be proper; if attended with fever and much pain, with a full pulse, bleeding must not be omitted, and repeated if necessary; and even if unattended with fever, where the cause proceeds from sympathetic irritation, the loss of a few ounces of blood may be of considerable benefit. In case of fever, this must be removed before opiates or any kind of astringents can with safety be administered.

Costiveness is a very common complaint during pregnancy; it is chiefly occasioned by the pressure of the uterus upon the rectum, and the increased heat of the body; and when suffered to continue so as to occasion indurated fæces in the rectum, accompanied with tenesmus, great irritation, and even inflammation, in and about the anus, it becomes exceedingly troublesome, and may occasion premature labour; and at the same time thin loose stools will now and then pass off by the sides of the indurated fæces, from which the patient concludes the bowels are

in a lax state ; but if the part be examined, the irritation will generally be found to be occasioned by a kind of concreted ball, (exciting a flow of lymph and mucus, which pass off tinged with the stool,) which cannot be removed but by manual assistance, either with a finger or the handle of a spoon, so as to divide and break the hardened fæces. This happens to women when not pregnant (and to men) from neglect ; and the expulsion of it will oftentimes be as tedious as a common labour. In such cases, purgative medicines will do hurt ; as forcing, before the cause is separated and reduced, must increase inflammation ; nor will clysters avail. Should this be neglected too long, it will occasion abortion.

The functions of nature ought ever to be carefully observed ; and that of the intestines, for the descent and exclusion of the excrements, is of much importance, particularly during gestation, and at all other times.

That desirable fashion of not wearing stiff or tight stays round the waist, is of vast benefit to pregnant women ; not only in relieving the uterus and breasts from injurious pressure, but also giving the intestines room more freely to perform their office ; the peristaltic motion being the less impeded, the bowels are consequently rendered less liable to constipation.

There are some women (when not pregnant) who do not have an alvine evacuation oftener than once in six or seven days, (this also happens to some of the male sex) ; but when they suffer themselves to go twelve or fourteen days in common (if it can be credited), it must prove a severe kind of labour.

This costive state will cause the piles, and must greatly disconcert the economy of the liver, by obstructing the bile and producing the jaundice ; the stomach will also be materially affected, and consequently the head with giddiness and pain ; the thinner putrid part of the fæces mixing with the lymph, will be absorbed by the lacteals into the circulation, producing feverish indisposition, offensive breath, &c.

When the discharge of urine is attended with considerable difficulty, either from colds or any other accidental cause, accompanied with inflammation ; or from spasmodic stricture about the neck of the bladder ; or from long and continual pressure of the uterus, causing the bladder to be distended, so as to prevent the urine from passing ; with a constant desire to discharge it ; bleeding, from six to eight ounces, must not be omitted, and repeated if requisite ; and keeping the body in an horizontal position : if there be any quantity of water in the bladder, the catheter, if it can be passed without giving pain, will be necessary : but should this be attended with much difficulty, warm water with flannel applied

over the pubes by way of fomentation, may relax the sphincter muscle of the bladder, to prepare the way for the catheter, if the water should not pass.

When the obstruction of urine proceeds from the pressure of the uterus, leaning on the hands and knees may assist the discharge ; and at the same time a finger passed up the vagina, so as to raise the uterus ever so little, may give vent to the water. The drink should be barley-water, or almond-emulsion ; mucilaginous and balsamic medicines will be of use, when those of a saline or spirituous stimulating quality will increase the complaint.

Where costiveness attends the difficulty of passing urine, demulcent medicines are best ; castor-oil and oil of almonds, of each equal parts (about half an ounce of each), properly mixed with a mucilage of gum-arabic, diluted with common water which has been distilled, or only boiled (but cold), flavoured with a small proportion of mint or cinnamon-water, whichever may be most grateful, with a small proportion of sugar, or syrup, made into a mixture of about six ounces ; of which, two or three table-spoonfuls taken frequently, will be found of much use, and may be continued as long as the bowels require it.

It has been supposed that few women die pregnant, comparatively with others ; but although pregnancy may be the means of preventing some disorders, yet it produces such as sometimes will prove fatal, if not properly and early relieved.

Pregnancy may be divided into two principal characters, or distinct stages : such as the complaints in the early months from *irritation*, and afterwards from *pressure*. Irritation of any part of the body, after a certain time, in some degree loses its effects of causing uneasy or painful sensations ; and all such sensations, from constant habit, gradually appear less.

The first symptom of pregnancy is a suppression of the menses. If the menses be not suppressed, conception cannot have taken place, according to the general economy of the human body. Although there may be sometimes an appearance of blood, when pregnant, it is of a nature to coagulate ; but the red discharge known as the menses, never coagulates, in or out of the body. But obstructed menses may proceed from a morbid cause, attended with sickness, pain in the breasts, &c. similar to those from pregnancy, and these symptoms may continue ; but in the event of pregnancy, relief is always found about the fourth month, which is the time when the uterus generally advances out of the upper chamber of the pelvis, and

being thereby released from its confined state, the irritation and its attendant symptoms consequently cease.

The breasts and the uterus are ever disposed to close participation (consent of parts); the breasts enlarge, are attended with lancinating pains caused by their distention, and become so tender, that any slight pressure will give uneasiness. The breasts too are liable to be affected in a somewhat similar manner, when the menses are about terminating; and also in some irritable habits, in a small degree, at the common monthly periods, or from accidental obstruction of the cataamenia, occasioned by colds, &c.

The disk or areola encircling the nipple (which, in young women who have not borne a child, is of a rosy tinge) assumes a brown cast, and becomes broader: this change also may appear when the breasts are enlarged from other causes than pregnancy. The seat of the areola being in that membrane termed *rete mucosum*, will sometimes, during pregnancy, assume a very dark appearance. When the child is weaned, the areola gradually disappears.

Vomiting (particularly in a morning), heartburn, and indigestion, accompanied with an apparently absurd propensity for eating particular things, are esteemed pretty clear indications of pregnancy.

The fashionable rage of longing for various articles, on a supposition that, if not indulged in, the child would be marked with a resemblance of such things, and become an object, is now much abated; the enlightened and rational part of women begin to find it more imaginary than really necessary:—a proof of their increasing good sense.

An umbilical hernia frequently attends women during the time of gestation; which is caused by the expanded uterus forcing the intestines against the navel, and occasioning it to protrude to a considerable extent: this rupture may be attended with much inconvenience; but little relief can be given, otherwise than by some soft application by way of gentle pressure and support, or by means of straps of adhesive plaster, until after delivery, when an elastic truss, properly adapted for the complaint, will be found of much use.

Should the skin of the abdomen crack, from great distention, an application of linen dipped in fresh mutton-suet (melted and hung up to cool), will be of great relief.

The same symptoms, during gestation, do not appear alike in all constitutions;

in some they will be more mild than in others. Yet the habit in general is apt to be attended with debility, lassitude, and little or much feverish indisposition; the patient becomes restless, peevish, and somewhat emaciated; consequently the cheeks sink, and the mouth naturally appears wider: all which symptoms proceed from uterine irritation, producing feverish heat, accompanied often with pain and giddiness in the head, drowsiness, dimness of sight, palpitation of the heart, paralytic affection and even convulsions, caused by the meninges of the brain being either immediately affected by the peculiar sensation of the uterus, or, secondarily, through the medium of the stomach, heart, &c. Various hysterical affections (so called) sometimes proceed from agitation of the mind, producing sympathetic spasmodic affections, when not pregnant, and oftentimes to a violent degree, such as convulsions, delirium, &c. So ambiguous are the symptoms in the early stage of pregnancy, that they cannot always be depended on.

There are certain particularities in some, which give the surest indication of pregnancy; such as having been attended with the tooth-ache, a short spasmodic cough, a pain in some particular part of the head, an unusual flow from the salival glands; others having a desire for some certain thing, and also acquiring peculiar habits.—I myself attended a lady who, when pregnant, had the propensity of chewing green tea in no small quantities, without any inconvenience attending it.

Notwithstanding the sufferings which are experienced by some women, there are not wanting instances during the state of pregnancy, in some peculiar habits, even of enjoying a better state of health than before.

After the preceding account of the various symptoms of which pregnant women are susceptible, and also of the frequent difficulty of ascertaining whether they are pregnant or not, in the early months; the following leading symptoms are chiefly to be relied on.

If a young woman, from the age of fifteen years and upwards, complains of shooting pains in the breasts, with a suppression of the catamenia, the areola round the nipples being enlarged, and dark (particularly if she never had a child), attended with morning-sickness, a change of countenance, becoming languid, peevish, and, instead of the belly enlarging from the beginning of pregnancy, the appearance is more flat; there can be little doubt but that she is with child. The breasts are always somewhat enlarged soon after conception, the nipples become elevated, projecting more from the surface of the breasts, are more rugged, and in common the dusky ring round the nipple becomes broader.

It has been noticed, that in the two first months there cannot be any elevation of the abdomen ; but after the third month, an elevation is generally perceived. Also, with the first child, the front of the abdomen is not so prominent, as after the second or third labour ; the abdominal muscles and peritonæum do not readily give way at first ; and the uterus in general is observed to be more inclined to one side, according as the child happens to lie, or be suspended. In short women, the uterus spreads wider from side to side ; in tall women, it can easily rise higher, and therefore not so wide, yet occupying the same space.

The cramp in the legs, which oftentimes may be found very distressing, is most frequent just before the time of quickening ; but as the uterus rises out of the pelvis, it abates. Gentle friction with anodine embrocations to the parts in pain, will give temporary relief ; but when it happens towards the latter part of gestation, little relief is to be found, until the cause (from the pressure by the uterus, on the ischiatic nerve) is removed.

The piles (hæmorrhoids) is a very frequent complaint during pregnancy, but more particularly so some little time previous to that called quickening ; here sulphur and manna, with a small proportion of purified nitre, properly mixed, and taken by way of an aperient, will be found useful. Also an ointment made of unguentum cetaceum ȝij, tinctura opii ȝȝ, vitell. ovi unius. This applied to the part, will give relief : but leeches used externally, give relief sooner.

The mode of ascertaining pregnancy, in examination *per vaginam*, by those who have habituated themselves, may sometimes be pretty correct ; but the prudent man will be cautious in giving his opinion on this point until about the fourth or fifth month.

The length of the fundus uteri and cervix united, is barely three inches, in the unimpregnated state. In the two first months, the neck of the uterus is not so easily moved with the finger as at other times when unimpregnated. The vagina, at the beginning of pregnancy, will sometimes be found rather contracted, if a young woman, and the os uteri generally feels a little uneven, with very small knobs.

The os uteri, in the virgin state, appears like a crevice, or cleft, going from side to side, and closed, (TAB. XIV, Fig. 1) ; but in those who have had children, it is circular like a funnel with the large end downwards, into which a finger may be introduced a little way ; and it generally appears somewhat rough, which may be occasioned by some of the fibres giving way in the time of labour. It cannot be

known, by the feel of the os uteri, how long she has been pregnant, for this is closed by mucus till within a little of the time of delivery. Therefore the best way will be, after introducing the finger into the vagina, and before it reaches the os uteri, to push or carry the side of the vagina up before the finger, and then feel for the fundus of the uterus. When not pregnant, the division between the neck and fundus cannot be distinguished, because it forms so very obtuse an angle ; but if the uterus be impregnated, the fundus will be enlarged ; and at the end of the third month, the tumour formed by the uterus will be of the size of an orange, (a sign of being pregnant,) which may be easily perceived by the finger stopping against it. As pregnancy advances, the upper part of the neck gradually is distended, and consequently gets shorter.

At the end of the fourth month, the tumour fills the pelvis, and the os uteri is turned rather backwards. About this time there is sensibly a change, the woman supposes she feels the motion of the child ; (these symptoms are particularly noticed when treating of quickening) : and about the fifth month there is a watery discharge from the nipples.

It may happen that the uterus may become enlarged by disease ; in this case, the Accoucheur will be foiled, unless particular symptoms are attended to, and carefully investigated : but this happens seldom.

The vagina, in early pregnancy, appears shorter, because the uterus falls by its weight lower down (in the vagina), and the belly appears flatter ; but as the uterus advances into the abdomen, it stretches and elongates the vagina. By knowing the length of the cervix uteri in the unimpregnated state, which is in common somewhat less than an inch and a half ; so is the calculation to be made during pregnancy in proportion as the neck shortens : but here the Accoucheur may be mistaken, as, in different women, the proportion of the cervix and size of the uterus will vary. After the fourth or fifth month, both ends of the neck of the uterus may be felt, but not before.

In general, if the neck of the uterus be only half its usual length, the woman is between five and six months in her pregnancy ; if three quarters gone, then between seven and eight months ; but at this stage the uterus, leaning forwards over the pubes, throws the neck of the uterus back towards the sacrum, and sometimes so much as not to be able to reach the os uteri with the finger ; and when only six months gone, it is oftentimes with great difficulty the os uteri can be reached. (In this direction, the axis of the uterus and cervix is not with that

of the pelvis, as in the time of advanced parturition): but by pushing the finger gently against the fundus several times, the fluctuation of the child may be felt. When it is farther advanced, and the waters but very small in quantity, the foetus will not recede by this mode, but it may be felt over the symphysis pubis.

In the two first months and part of the third, the orifice of the uterus is nearer to the os externum; between two and three months, the fundus is even with the rim of the pelvis; about the latter end of the third, and sometimes not until the fourth month, and sometimes later, the uterus advances above the rim, and is readily perceived by the hand through the skin, peritonæum, &c. of the abdomen; and about this time the action of the child is thought to be felt by the mother; which is generally the time commonly termed quickening. Between the fourth and fifth month, the fundus of the uterus is between the pelvis and navel; at the sixth month, as high as the navel; at the seventh month, between the navel and scrofula cordis; in the eighth, up to the scrofula cordis; in the ninth month it oftentimes subsides, and is only about the same height as when at the seventh month.

Authors remark:—An *ovum*, between the eighth and ninth week after conception, is nearly about the size of a hen's egg, while the embryo scarcely exceeds the weight of a scruple; at three months, the former increases beyond the magnitude of a goose's egg, the weight about eight ounces; but the foetus does not then amount to three ounces; at six months, the foetus weighs twelve or thirteen ounces, and the placenta and membranes only seven or eight; at eight months, the foetus generally weighs somewhat more than five pounds, the secundines little more than one pound: at birth, the foetus weighs from six or seven to nine pounds, which it rarely exceeds; but the placenta seldom increases much in bulk from between the seventh and eighth month.

Also, the following observations are supposed to indicate what happens on the general run; but constitution, health, and different circumstances, may cause variations. A foetus of four weeks is near the size of a common fly; it is soft, mucilaginous, seems to hang by the belly, and its bowels are only covered by a transparent membrane. At six weeks, the consistence is still gelatinous, the size about that of a small bee, the head larger than the rest of the body, and the extremities then begin to shoot out, (*vide TAB. XIV. Fig. 8, magnified.*) At twelve weeks it is near three inches long, and its formation pretty distinct. At four months, the foetus measures about five inches; at five months, between six and

seven inches ; at six months, the foetus is perfect in all its external parts, and commonly in length about eight or nearly nine inches ; at seven months, it is between eleven and twelve inches ; at eight months, about fourteen or fifteen inches ; and at full time, from eighteen to twenty-two or twenty-three inches. But these calculations, for the above reasons, must be somewhat uncertain.

Every different species and class of animals have their peculiar allotted time of gestation. The mare goes eleven months, the sheep five months, and the hare but one month, &c. &c.

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*Sect. 2.—Of Quickening.*

QUICKENING, (so termed) according to the commonly received opinion, has been generally understood to commence at the time when certain particular sensations are perceived by the mother, supposed to be occasioned by the first motion of the child.

These sensations happen at different periods ; with some women, they are not felt until the twenty-fourth or twenty-fifth week, and in others are so slight as not to be regarded at all.

The more common time of feeling any such symptoms is about the latter end of the fourth, or beginning of the fifth month of pregnancy ; (sometimes sooner :) at this time, the uterus filling up the pelvis, slips out and rises above the rim ; and from that sudden transition, women of delicate constitutions, and irritable fibre, are apt to faint, more particularly so, if in an erect position : this may happen merely from surprise, occasioned by the hasty intrusion of the new visitor into adjacent parts much more susceptible than the uterus itself ; or, probably, from the pressure of the uterus being suddenly withdrawn from the iliac vessels ; the blood rushing down, the superior parts instantly feel the loss : but a supine attitude soon recovers the patient from her deliquium.

But if this transition of the uterus happen when the woman is in bed, fainting is never the consequence ; nor when the uterus ascends gradually out of the pelvis ; which no doubt is sometimes the case, and generally so where the uterus has been retroverted.

Women advancing in pregnancy, not being quite clear in their reckoning,

previous to the nominal time called *quicken*ing (meaning the time of the uterus advancing above the rim of the pelvis), count the weeks from that time ; and, when they have had several children, they may be pretty correct; as, in common, this circumstance happens about the same period of gestation in the same subject, but yet may not be perceived in the same woman, with every child, for reasons just noticed.

It is not likely, that the first imaginary struggles of the child, termed its quickening, proceed from any divine inspiration at the moment; or that the child did not possess equal life previous to the sensations produced at this period by its supposed action : for so soon as the heart of any animal begins to be in motion, and the circulation of blood commences, foetal life also commences.

There cannot be any doubt but that the heart of a foetus begins to act a considerable time before the foetus itself is properly matured in its formation, as necessary for the completion of all its vessels and every other part.

De Graaf asserts from observation, that in rabbits the heart acts before the formation of the animal is completed : and according to Malpighius and Harvey, the action of the heart of a chick commences at the end of the second or third day ; and at the sixth day, the heart seems to have attained considerable sensation, yet the formation of the whole chick is not completed till after fourteen days of incubation.

The action of the child, said to be perceived by the mother when it quits the upper chamber of the pelvis (at the time termed its quickening), has not been satisfactorily proved to be the occasion of those symptoms which frequently follow.

May it not be most rational to conclude, that the fainting, &c. which in general happens about the end of the fourth or beginning of the fifth month, proceed entirely from the sudden escape of the uterus out of the upper chamber of the pelvis ? For, notwithstanding the formation of the foetus may be very distinct, its measure (in common) is not more than five inches, (and at the end of the third month only about three inches;) and therefore not very likely to produce struggles to affect the mother so materially as to occasion fainting, or hysterical affections.

Admitting the child may have some slight motion of its limbs after being thus formed, whilst in the pelvis ; it is not likely that this motion should be perceived by the mother through the bony inclosure ; and as soon as it rises above the rim of the pelvis, any action which it may then possess from its size and strength, can

only produce slight vibratory sensations. For, although the uterus may be termed the fountain of sympathy when impregnated, diffusing its sympathetic influence to the stomach, breasts, and various other parts ; yet in itself, it has but little sensibility to the touch, or from slight pressure, excepting when in an inflamed state.

During pregnancy (in general) the muscular fibres of the uterus are dormant. But, as soon as gestation ceases, action commences in these fibres.

As the child increases in size and strength, its action must naturally be perceived at times, and often rather severely, but not in such a degree as to produce deliquium animi.

The sensations often perceived, in early pregnancy, in the lower region of the abdomen, previous to and after the time when the uterus mounts above the rim of the pelvis, may be occasioned by slight spasms, through the great irritability of the intestines from flatulency and costiveness.

This idea of quickening, which I have long entertained, is not congenial to that of the generality of authors who have written on the subject, (meaning the specific time and sensations occasioned by the first plunge of the child;) but I find it has been somewhat similarly noticed by that intelligent editor, Wm. Royston, esq. and inserted in the Medical and Physical Journal for July 1810, vol. xxiv. page 38.

It seems not improbable, that the principle of vitality of the foetus commences and is blended with the corporeal part *ab initio* ; from the commencement of impregnation, or quickly after, and prior to the passing of the ovum into the uterus.

The corporeal parts appear to take the primitive lead in point of action, from an innate irritability ; and the oxygen, which is conveyed by means of the numerous vessels of the decidua and uterus, connected with the placenta, may possibly be the stimulating cause.

As soon as the limbs of the foetus are completed, and a due circulation takes place ; action, or rather vibratory motion, is then likely to happen.

The mental spark in the foetus, although actually existing, does not appear to have any great influence on the foetus *in utero*, nor for many weeks after the birth : action of the limbs prior and subsequent to parturition, appearing irregular and involuntary, naturally arises from that irritability and stimulus peculiar to the animal economy.

The child's early propensity for the breast may be implanted by nature, and

directed by that impulse termed instinct, (of which we have only an imperfect knowledge) : but from time and habit, the nervous influence increasing, ideas are gradually acquired, the mental powers improve in strength and activity, so as, in due time, to discriminate objects, influence muscular motion, and become capable of producing that (wonderful) faculty termed reasoning.

Those officious persons, who wilfully are the cause of abortion before the child is said to have quickened, or moved in the womb, as expressed by the mother, are equally guilty of murder, as those who wilfully deprive a child of its life, at any future period, even after the birth.

But circumstances sometimes occur, where premature labour may be justifiable ; in cases where it is known, that if the child be suffered to go the full term of nine months, it cannot possibly be delivered without being previously destroyed, reducing its bulk by means of instruments and extracting, in order to save the mother's life ; otherwise, both mother and child must be lost.

This will happen when the pelvis is distorted and contracted to a certain space, where it is known a full-grown child, or even a small child, cannot, by labour-pains, or the forceps, be delivered.

Such distorted pelvises are particularly described in the Tables.

In some instances, where premature labour has been procured at about the termination of six months (when judiciously managed), both mother and child have survived.

## CHAPTER II.

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*Sect. 1.—Of Natural Labour.*

NATURAL Labour being the principal subject of the Tables, to which these pages refer ; it may also be expected I should be full and explicit in relating the symptoms which are likely to occur during its progressive stages ; to describe the state of the os uteri, os externum, &c. ; with the various appearances generally observed previous to, at the commencement, and through the whole progress of labour. The Tables represent the different directions and situation of the head of the child as it advances.

The period of utero-gestation, in the human subject, is at the expiration of forty weeks, as previously observed : parturition then commences.

Natural labour, in the true sense of the word, is that, in which the head of the child presents, totally unassisted by art, and is generally over in twenty-four hours ; every stage going on in regular succession, and the child, as likewise the placenta and membranes, being expelled by the contraction of the uterus, &c. This process is accomplished with little or no difficulty when the pelvis is well-formed and has arrived to its full size, and the head of the child of due proportion ; but if the subject be either very young, or advanced in years, there will be impediments ; in the first, from the pelvis being small ; and in the latter, from the rigidity of the parts through which the child is to pass.

Although, in this country, girls generally begin to menstruate about the age of fourteen or sixteen years, and that they are then susceptible of impregnation ; yet the pelvis seldom arrives to the full size before the eighteenth or nineteenth year ; and therefore it may be natural to conclude, that the most eligible time for marriage is from nineteen to five or six and twenty.

The predisposing signs of labour are many, but do not appear in every woman exactly alike, or at the same time ; difference in constitution will cause variations. Some women have only a few days', or perhaps hours' notice of their labour ;

whilst others have previous symptoms of several weeks. It may in general be observed, the more regularly and naturally the changes take place and succeed each other, and the longer the time preceding labour, the more favourable its termination.

One, two, or three weeks previous to labour, the abdominal projection visibly subsides, more or less, chiefly by the gravitation of the uterus, from the erect position peculiar to women: this may be reckoned a favourable symptom: but when the fundus of the uterus is high up, or but little depressed at the beginning of parturition, it shows rather a deficiency of action in the uterus, as not disposed to perform its office favourably.

There may be observed in the generality of women, somewhat previously to actual labour and before any sensation of pain takes place, a kind of sympathetic anxiety, or oppression, about the *præcordia*. The lassitude and dejection of spirits usually felt about the first stage of labour, arises either from an apprehension of approaching danger, or from the universal sympathetic sensation, caused by the affection of the uterus. The same is also perceived in most animals.

The coagulated mucus which had plugged up the mouth of the uterus soon after the embryo entered it, generally comes away in a mass just before labour, and is discharged with the thinner mucus of the vagina, which is for the inost part tinged with blood, caused by a slight separation of the vessels on the lower part of the decidua from the uterus near the *os tincæ*: this appearance is known to women by the term *show*; which is by no means unfavourable, and is regarded as a token that parturition is drawing near; yet it sometimes appears a day, two, or three, previously, and the blood discharged may be much more at one time than at another (and sometimes rather considerable), but not so as to be attended with ill consequences. The remaining part of the *cervix uteri* (undistended) gives way just before labour, and the head of the child within the membranes comes in contact with the *os uteri*: this also may happen some weeks previously to labour, and the *os uteri* be somewhat open.

When there is a frequent desire to pass urine, (even) five or six weeks preceding labour, it is a proof the head of the child presses against the lower part of the bladder, and consequently prevents the discharge.

Soon after the commencement of labour, the vagina relaxes so as to allow the uterus to sink partly into it, and, by its pressure on the rectum, will cause an inclination to go to stool: as the head continues to advance, its pressing on the

neck of the bladder gives a propensity to make water without effect (producing a kind of strangury); and should the bladder happen to be distended with urine, (from a neglect of passing it sooner,) even at this stage of labour, (at a time when there happens not to be any pain,) it will be necessary to make use of the catheter.

The frequent inclination for making water, which occurs about the beginning of labour, is caused by the pressure on the fundus of the bladder, and is attended with slight pains and bearing-down: every opportunity should now be given the patient for the discharge (which ought to be encouraged), to ailay the irritation and to empty the bladder; the pressure on the neck of the bladder from the head of the child as it advances, must of course hinder the water from passing, and therefore the more frequently it is discharged in the early part of labour, the better.

It has happened, at the commencement of labour, that, from omitting to pass urine frequently, the bladder has been distended and retroverted (turned backwards), filling up great part of the pelvis; which to the touch must appear like a large tumour; but as the foetus advances, pressing on the bladder, it may possibly cause the urine to be discharged through the urethra. But in such cases, the bladder will be liable to rupture, and it will always be advisable to attempt to introduce the catheter to draw off the urine; and should not the common catheter answer, without some degree of force (which should ever be avoided), the flexible male catheter will succeed on most occasions, where the bladder is forced out of its common situation.

Should the *rectum* contain hard fæces, it will be necessary that an injection, by way of glister, should be administered at the commencement of labour, to prevent it from being torn by the pressure of the child's head: but whether the fæces be hard or not, a glister ought ever to be recommended at the commencement of labour, unless the patient's bowels are in a laxative state.

As labour comes forward, a rigor is generally perceived, with or without a sensation of cold, and sometimes succeeded by perspiration, and, in some very irritable habits, appears on the return of every pain: these rigors are symptomatic, from the increased irritation produced by the distention of the *os uteri*; and although they seldom are attended with any ill consequences, yet, when the *os uteri* is on the utmost stretch, and the patient is seized with a severe rigor, it may terminate in convulsions.

The most natural position of the child *in utero*, is that in which it is commonly discovered, as being the most easy and compact attitude possible, (*vide TAB. XI. Fig. 1*). The head being the heaviest part of the body, is generally lowermost, the face inclining towards the breast, the spine curved outwards, and the thighs approaching the belly, the legs and heels drawn against the thighs and breech, the hands and arms folded about the knees and legs, or over the abdomen: every part is so placed as to be accommodating to the uterus, and to take up the least room. The flexor muscles appear prominent by their contractile action.

When any other part than the head presents, it may be in consequence of the placenta not adhering to the fundus, but to some other part of the uterus; or it is likely to be caused by some motion of the child, changing its attitude from accidental circumstances, as a fall of the mother, or any violent exertion; which also may produce circumvolutions of the funis; and when the position is once changed, and the waters become much less in proportion to the size of the child, it is generally so confined in the uterus, as not to be able to resume its original position.

In the most natural position of the head, the vertex advances first into the pelvis, pointing towards the *os uteri*, with the ears a little diagonally; (*vide TAB. I. and IV.*) The vertex, when advanced so far as presenting to the *os externum*, is easily distinguishable by the *sutura lambdoidalis*.

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*Sect. 2.—The Progress of Labour investigated by Examination per Vaginam: and its concomitant Symptoms.*

If the *os uteri* be closed, and some length of the cervix remain, labour cannot have commenced. In order to ascertain the exact state of the parts, and to be certain whether labour has commenced, it will be requisite to examine *per vaginam*. But previously to this, upon first entering the room it will be prudent to wait a little, and to ask of the nurse some necessary questions respecting the symptoms, such as generally occur:—Has there been any show? Is urine frequently passed, or is it stopped, and only a desire without voiding any? This may give information respecting the state of labour. Are the waters broken?—(a common term for the rupture of the membranes.) How long have the pains commenced; and are the

returns frequent? &c. It almost ever happens, that, upon the appearance of the midwife, there is a cessation of pains generally about a quarter of an hour, more or less.

Examining the parts, if not carefully attended to in the first attempt, may prove prejudicial to the young Accoucheur, by causing some anxiety to the patient: for if the midwife appear awkward, or not ready at this trifling operation (as it may be thought), the patient will have her fears, and apprehend a want of practice, or proper instructions. To apply the finger decently, and readily, is of considerable import. The term, by which it is known to women, is that of *trying or taking a pain* (in the time of labour); and it must be done at the time whilst the pain is on, and not at any other (excepting in cases of floodings or faintings). When in pain, the patient is alarmed and wishes for assistance: introducing the finger at this time (*per vaginam*) is rather desirable, on a supposition that some relief is to be given; and it must be remembered previously to pare the nail close, and to apply fresh unguent over the finger each time examination takes place; which should be but seldom, when once it is ascertained to be a natural presentation of the head, and the parts well proportioned. Of this the Accoucheur ought to inform himself the first time of examining, and not to withdraw the finger until perfectly satisfied, and sufficiently able to answer any questions put by the patient, or those with her. Persons who have been in the practice of Midwifery, will be capable of applying the finger readily to the *os externum*; but those who have not, will gain the best instructions by attending *Obstetric Lectures*.

When the finger is introduced through the *os externum* into the *vagina*, it should be passed upwards and backwards, to feel for the *os uteri*; which, at the beginning of labour, will generally be high up, and pointing backwards: the touch of the finger will discover whether the *os uteri* be open, and how much, and whether the membranes are pressing down, and distending it: (if the *os uteri* be closed, labour cannot have commenced.) All this must be done tenderly, so as not to rupture the membranes; and as soon as this is ascertained, apply the finger close on the lower and back part of the *vagina* over the *perinæum*, where it should remain firm until the pain is off; then carry the finger upwards and towards the *symphysis pubis*, and the head of the child will be readily perceived, if presenting, and there resting, by the resistance made to the point of the finger; and the general calculation is, that, in nineteen cases out of twenty, the head

will be there discovered, at the beginning of labour, and sometimes so early as the fifth month.

If any other part present, more soft than the head, labour must be suffered to go on, until the waters break; and if no part of the child can be felt either over the pubes or os uteri, that is no proof against its being a natural labour; the head may have been kept suspended by a great quantity of waters, and only a part discharged at first: but in common, when the head is pendent, it advances suddenly into the pelvis, as soon as the membranes rupture, yet sometimes not until a pain or two; but should not the head, or other part of the child be discovered by the finger after a few pains (and the membranes ruptured), it will be necessary to introduce the hand into the uterus (when the parts are sufficiently relaxed), and extract the child by taking hold of one or both feet, according to the rules prescribed in preternatural cases, (unless the head should be the first part perceived;) in that case the face may be placed towards the sacrum; if not so, the hand must be withdrawn, and labour left to nature. The os externum and vagina may not be relaxed at the commencement of labour, and sometimes feel as if rather contracted; but as labour advances, the vagina and os externum sympathetically relax, from their peculiar accommodating fibrous structure, to be prepared for the passage of the child; which is forced down by the impulse or contractile power of the uterus; the vagina, in time of labour, not having any power of action in itself. The less the os uteri is distended, the more tense the membranes feel to the touch, in time of pain; the more they protrude, the less their resistance.

When the os uteri is dilated to about the size of a shilling, the head presenting, the parts well formed, and the woman having had children, the labour may be supposed in some forwardness, if the pains are considerable; and it will be prudent always to have the bed early prepared with its necessary coverings. When the membranes are distended about three inches in diameter, they generally rupture by the pressure of the waters, (*vide TAB. XI. Fig 1;*) and when only two inches, it may be proper for the patient to be placed on the bed where she is to be delivered, when known to have quick labours.

Although it may be termed a *natural* labour, if the head present, and the delivery of the child be completed at the termination of twenty-four hours; yet some women who have borne children, with a full-sized pelvis, may be delivered in a much shorter time, with very little uneasiness, and perhaps only one or two pains.

To ascertain, from the commencement of a natural labour, how long it may continue before the child is delivered (even in those who have had children, and the pelvis well formed) must in a great measure be uncertain, as much will depend on the size of the child, and degree of ossification of the cranium ; but midwives who have been long in practice, can give a pretty near guess from symptoms and knowing the size of the former children, (unless accidental circumstances intervene) ; and perhaps, in the general run, it may be calculated, that, from the time of the beginning of pain till the membranes break, eight hours may elapse ; after which, if the head pass immediately into the upper chamber of the pelvis, the pains being strong, and the vagina and os externum properly relaxed, the child will be delivered in one hour, and sometimes sooner : but if the head be very large, it may be two, three, or four hours ; and (when the child is small) it may be born in one, two, or three pains, after the membranes rupture. In cases of the first child, it seldom happens that it is delivered in less than twelve hours, even if the child be small.

Labour-pains are chiefly in the back and abdomen, frequently shooting forwards from the back to the belly, and down the thighs. The pains in the back are the most distressing whilst the os uteri is dilating ; and oftentimes entirely leave it when the dilatation is completed.

Should the membranes rupture, while the os uteri is not more open than the size of a shilling, the labour will be tedious, particularly so if the os uteri should be disposed to be rigid : its dilating now, will entirely depend upon the pressure of the head, which may force it down and produce a procidentia uteri, if not supported by the fingers in time of pain.

In examining *per vaginam* where there is a prolapsus (*procidentia*) uteri, the patient should be placed on her knees, to ascertain the state of the parts correctly ; and as labour advances, caution will be required in time of pain to support the os uteri, and endeavour to prevent its advancing before the head of the child. It will be also proper to observe, there is a kind of cellular substance surrounding the urethra, by some improperly called the prostate gland, much larger in some women, (if such be discovered, it must be watched;) and when it happens to be pushed down with the urethra before the head of the child, it must be elevated above the prominent part of the head (with the fingers), otherwise the urethra and bladder may be torn, and an incontinence of urine ever remain.

Although labour-pains, for the most part, may be attended with much

similitude, they will be found in some women very variable and uncertain ; so much, that there is hardly any part of the body, from the head to the foot, but is liable to be affected instead of those generally attacked ; and when the brain or its meninges happen to be the seat of sympathy, convulsions follow.

In some irritable habits, from the great pressure of the child's head, when large, on the neighbouring sciatic nerve, there will be produced a spasm, or kind of cramp, in one or both thighs, during the absence of labour-pains, equal if not more distressing than those of labour, which alternately succeed each other ; and a paralysis of the lower parts will sometimes happen.

It has been remarked, that the action of the uterus is involuntary ; nevertheless, it is known to sympathize with other parts of the body, as well as for other parts to sympathize with the uterus. The mind has great influence on most parts of the body, particularly the uterus, in time of labour ; hope and confidence increase the action of the uterus, and, on the contrary, fear and dread retard it.

The os uteri will, in some instances, be somewhat relaxed for several days preceding actual labour, and even a week. The dilatation of the os uteri, at the time of real labour-pains, is caused by the pressure of the ovum, when the os uteri will be found tense and stretched, little or much, and which every succeeding pain increases ; and although it appears for some hours, at the beginning of labour, as if no progress were making, yet, insensibly as it may seem, the membranes, distended with the pressure of the waters forced down by the action of the uterus, expand the os uteri, and produce, by small gradation, that wonderful effect in preparing the way for the head of the child.

As labour advances favourably, the pulse generally increases in strength and frequency. In cases of obliquity of the uterus, the os uteri is thrown to one side in the vagina ; but this is never attended with any ill consequence ; for as labour proceeds and the waters are forced down, it will be brought into the centre, (as before observed.) This obliquity may happen from the placenta adhering to one side of the uterus, and by its weight draw the uterus to that side ; but this may not be perceived externally, because the intestines fill up the contrary side. It also may be occasioned by the intestines accidentally getting more on one side.

The preceding observations are the principal diagnostics of the approach of labour in general : but the symptoms are oftentimes very numerous, and vary greatly in different habits and constitutions, particularly the appearance of the os uteri, which, in some, is exceedingly thin, whilst in others it is discovered thick

and pulpy, at other times very rigid ; this latter state may prove so obstinate as to require bleeding (in time of labour), which will relax the parts, and may also prevent convulsions. Should the os externum and vagina be uncommonly rigid, relief may be obtained by sitting over the steam of hot water. It sometimes happens, with the first child, that the os uteri will be so remarkably thin, that it is not without difficulty its edge can be traced against the membranes : under such circumstances, much caution should be used not to rupture the membranes with the finger.

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### *Sect. 3.—Of the various Denominations of Labour.*

NATURE's intention of labour being to expel the child and secondines, is frequently brought about by very different modes, and may with propriety be distinguished and divided into four kinds.

#### *1. Natural ;—2. Difficult ;—3. Preternatural ;—4. Complex.*

The two first are supposed to include all labours where the head presents.

A *natural* labour (as before noticed) is understood when the head presents, and the child is delivered in twenty-four hours from the commencement, without any artificial assistance, and is not attended with any particular difficulty or danger.

A *difficult* labour is sometimes attended with danger, and may not terminate in twenty-four hours, the head being large in proportion to the pelvis, uncommonly ossified, or presenting unfavourably ; also from the patient having been weakened by previous diarrhoea or sickness, and may require the aid of instruments.

*Preternatural* labour is, when any other part than the head presents ; or the head descending, with one or both arms.

A *complex* labour is attended with intervening anomalous circumstances, meaning the different species not naturally connected with each other ; such as twin cases (or more), presentations of the funis umbilicalis, convulsions, floodings, rupture of the uterus, &c.

As before noticed, natural labour has its varieties ; but the common and most natural presentation is when the head enters the pelvis with one ear a little on one side of the symphysis pubis, and the other ear in the opposite direction on one side of the sacrum, somewhat diagonally, (*vide TAB. I. and IV.*) which direction is

particularly marked (TAB. XV. *Fig. 2*) by the dotted line E F, and for the face to pass down and turn into the hollow of the sacrum, and the occiput to turn up from under the os pubis. But the different presentations of the head are many, as will be seen by the Tables; and yet it may be delivered (sometimes) in all these different directions when not large, and the pelvis well formed, without the assistance of art, although it may in some cases be protracted from various causes, even several days.

A natural labour may be subdivided into the *sick*, *sleepy*, *dry*, and *wet*.

A *sick* labour (so termed from the frequent retching) is produced by the irritation of the os uteri, at the time of its distention; the stomach sympathizing, causes a disposition to vomit: this is no unfavourable symptom, but, on the contrary, may assist in relaxing the parts, occasioning a greater secretion of mucus, which is of service in delivery.

A *sleepy* labour is, when the patient sleeps between the pains; which may proceed from the fatigue caused by pain, and the sudden transition to perfect ease, which produces the soothing sensation of sleep in certain habits, and cannot but be esteemed favourable, by its refreshing the spirits, and at the same time rendering the parts more liable to relax.

A *dry* labour is, when there is not a sufficient quantity of mucus to lubricate the parts; and also when the membranes happen to break early, before the os uteri is properly dilated, and the waters discharge suddenly.

A *wet* labour is, when the membranes by some accident happen to break early, so that the waters keep constantly dribbling; the pains being weak, the labour may not terminate till the uterus is emptied of the waters: then the womb may contract, and expel the child.

## CHAPTER III.

## DELIVERY.

Sect. 1.—*Of the several Stages of Labour.*

THE stages or gradations of labour may be divided into five.

The *first* stage of labour is from the commencement of pains; the os uteri somewhat relaxed, open, and gradually stretching by the waters pressing on the membranes; which being ruptured, the child's head enters the rim of the pelvis, down into the cavity (or upper chamber) in its most favourable position, lying diagonally with the occiput to one side of the symphysis pubis, where the lesser fontanelle may be felt, if carefully searched for, on the side on which it may happen to be placed; which is generally behind the branch of the ischium near the groin, the face lying towards the part where the sacrum and ilium join, on the opposite side, (*vide TAB. I and IV. and TAB. XV. Fig. 4.*) as just observed.

The *second* stage of labour is the time in which the face is passing into the lower pelvis (or chamber), the face turning into the cavity of the sacrum, (*vide TAB. II.*)

The *third* stage, being the further advance of the head out of the hollow (or concavity) of the sacrum through the passage of the vagina and os externum, converging from under the os pubis.

The *fourth* stage comprehends the expulsion of the body of the child and lower extremities: this may be completed with a pain, or two; or, in other words, expulsive efforts of the uterus. In common, about a pound of blood immediately follows the expulsion of the child, discharged from the uterine vessels.

The *fifth* stage, meaning the discharge of the placenta and membranes (secondines), being a part of the foetal system, which, when nature is not

hurried in the fourth stage, generally takes place very soon after the body of the child is expelled. This is also succeeded with a discharge of blood, and sometimes in such quantity as to be termed a flooding; but if only a small discharge, it is no more than natural.

The preceding progress of natural labour is when totally unassisted by art. But where the midwife is attending, (although the head may favourably present); yet, to prevent, or assist, when any accidental untoward symptoms appear (which are ever liable to occur), the midwife should be guarded with precautions, and ready to give every necessary aid.

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*Sect. 2.—General Observations on the manner in which the Child's Head passes through the Pelvis.*

THE head of the child, in common, passes into the cavity of the pelvis before the position is correctly ascertained; but Accoucheurs who are well acquainted with the anatomy of the parts, and the particular divisions of the child's head, fontanelles, and sutures, will often be able to distinguish the direction of the head early in labour, and if the presentation be unfavourable, as when the face is opposite the pubes, it can sometimes be passed round towards the sacrum, as previously remarked. When the head has passed through the rim of the pelvis, (*vide TAB. I. and IV.*) there is more space between the forehead and pelvis than between the occiput and pelvis; the occiput being so prominent, a finger cannot pass between it and the pelvis. When the head gets below the rim, the child cannot be turned: this is a general observation. Should the head enter the pelvis with the forehead to one side and the occiput to the other (instead of coming a little diagonally), in that case it may lodge before the spines of the ischia, (*vide TAB. XV. Fig. 2, line G H*): there will then be a considerable space between the side of the head and the symphysis pubis; and by feeling the ear directly opposite the symphysis pubis, and observing on which side the cartilage of the ear is, it will be known where the occiput lies, and by the application of two fingers on the temples, pressing the head a little upwards, and the face round towards the sacrum, it will be placed in the diagonal direction, as seen in *TAB. XV. Fig. 2*, marked by the dotted line *E F*.

But if this cannot be done by the fingers, it may be necessary to apply the forceps, to give the diagonal direction to the head.

From the commencement of natural labour, where the head and the pelvis are in due proportion, until nearly its termination, there may be but little assistance required from the midwife, any more than to recommend what may be thought necessary; such as a glister to be administered to the patient, if there be hard fæces in the rectum: to observe that no improper cordials be given; that her food be very light, and, in cases of great weakness, light broths may be allowed: to quit the room from time to time, to give her an opportunity of making water, and directing the nurse to importune her to do so frequently in the early stage of labour; and by no means to examine the state of the os uteri any more than is necessary, as, by frequent examinations, the parts will be irritated, rendered tender, and the influence of labour be diverted from the uterus.

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*Sect 3.—Useful Hints for the Accoucheur, and Directions for management of the Patient during Delivery: with Remarks on extracting the Placenta, &c.*

WOMEN (of the common order particularly) suppose assistance is to be given by the midwife at every pain; whereas, those who are acquainted with what is right, know it is apt to gall the parts, and to retard labour instead of forwarding it. Nature is the best midwife where there are no particular impediments in the way; and the less which is done by the midwife, the sooner will labour terminate, and the sooner will the patient recover: which ought to be particularly pointed out to the patient and those about her, as they, from ignorance and fear, (especially where the Accoucheur is young,) apprehend the woman is neglected.

The slower the progress of labour, the less violent will be the pains, and all the parts immediately concerned will keep pace with each other. If labour be hurried by violent forcing exertions of the mother, (which is too apt to be recommended by the attendant women,) the patient gets fatigued early in labour, and, by increasing the irritation of the os uteri, sympathetic alarming symptoms in the brain may be occasioned and convulsions brought on: also, the vagina and os externum not

dilating with the os uteri (when great bearing-down exertions are resorted to), in not being properly relaxed, the head, as it advances, will be more liable to cause laceration: so that, violent artificial means, at best, can only forward delivery one, two, or three hours, at the risk of producing convulsions, apoplexy, laceration of the perinæum, &c.; whereas, when left to nature, the fatigue of the patient is much less; the pains, although more in number, are not so severe, and therefore less hazardous; and the perinæum, becoming properly relaxed, is not so likely to be injured; the placenta too will be more readily expelled, and the patient will be sure to recover sooner.

It is not necessary that the patient should be on the bed during the whole time of labour: if she be able to sit, or walk about the room, in the fore part of the first stage, it may be the better; but to lie down when in the least fatigued, will be proper; and when reclining, the bed ought to be so made as to be on the descent from head to foot, and not by any means to impede labour by lying low with the head and shoulders, so as to hinder or retard the natural advance of the fœtus.

Towards the conclusion of labour, when the head presses on and distends the perinæum, (*vide TAB. III.*) then it will be necessary to apply the hand close over the perinæum, to support it (but not to draw or push it backwards), and rather to check the progress of labour when the forcing is very great, until the perinæum is sufficiently stretched for the head to pass without its causing laceration.

At the time when the os uteri is fully distended, and the vagina and os externum nearly so, the pains are much less; but the forcing down of the head is always greatest, and the anxiety of the patient and desire of being delivered are such, that, unless precautions are used, a laceration of the perinæum may be the consequence; which, towards the conclusion of labour, is so very thin, that its edge is not without difficulty perceived by the finger; and were not the head, in some instances, pressed on by the palm of the hand, and sometimes rather forcibly, to check the progress of the head (in time of pain), laceration of the perinæum will be more likely to take place, than with such precautions.

The occiput and vertex being protruded on the outside of the os externum, and the perinæum being on its utmost stretch (as seen in TAB. III.), yet, feeling to the operator a little relaxed at the time of a pain supposed nearly over, (I say nearly, for at this stage of labour, the pains, or forcings, in common, are almost continued as one), the perinæum may sometimes be easily passed back over the child's face.

The head being liberated from the os externum, ought not to be hastily dragged farther, but suffered to remain for another pain or two; which will generally be sufficient to expel the shoulders and body, in the natural and best possible manner; for if the shoulders be forcibly extracted before they have taken the turn allowed by the formation of the pelvis, so as for one shoulder to be nearly towards the sacrum and the other towards the pubes (the widest part of the rim of the pelvis), such violence, if the child be very large, may, by dragging the uterus and its ligaments, be the means of producing considerable injury to the same, as well as to the vagina; and cause inflammation, retention of urine, prolapsus, and a spasmodic stricture of the uterus, so as to prevent the expulsion of the placenta, by its contracting in the middle.

When the head only is delivered, and a pain returns, care must be taken to support the head as it advances, and to direct it upward towards the abdomen of the mother, so that it may have a curve accommodating to the direction of the vagina; which will facilitate its expulsion, and prevent injury to the perinæum, which, even at this time, should be somewhat supported by one hand at its edge.

As soon as the head is delivered, feel whether the funis be twisted tight round the child's neck: in that case, if it cannot be sufficiently and immediately slackened, the delivery ought to be forwarded. — Some women, when perceiving the hand retarding the birth of the child, before the head is quite out of the os externum, are apt to be violent in their exclamations: but their exclamations may be of use; for whilst they are speaking, they are not able to force down; the Accoucheur has nothing to do but to exclaim in return, that he is only doing what is proper, to prevent her being torn; and should never be deterred from what he may think absolutely right.

The shoulders and body of the child being expelled by the efforts of nature; the os uteri is thereby kept distended, and an opportunity afforded for the placenta to be separated from the uterus, which commonly follows the child readily into the pelvis, and thereby prevents the uterus from contracting over the placenta in such manner, as to make it necessary to introduce the hand into the uterus in order to extract it; which, if neglected in due time, may prove fatal to the patient.

This slow and natural delivery of the child, keeping the body, neck, and mouth of the uterus distended, gives an opportunity for its fundus somewhat to contract on (or rather against) the placenta, to which it generally adheres, and thereby causes it to be advanced towards the os uteri; which is very desirable.

Where nature has not been unnecessarily interrupted, but had its regular course, and the child suffered to advance gradually, the uterus has time to contract properly, and the after-pains will always be least, by reason that the large vessels of the uterus have time then to discharge the blood without hastily contracting, so as to confine it in the sinuses, and thereby become congealed, and afterwards dislodged with difficulty, producing those pains known as after-pains.

In this slow and regular mode of delivery, as the feet of the child pass out of the uterus, the placenta immediately follows into the pelvis; where, if not expelled by nature, it can be extracted by the hand with great ease, when thought necessary. But if it happen that the placenta should not enter the vagina or pelvis soon after the child, it may in the space of fifteen or twenty minutes, attended with pain; (during this time the patient somewhat recovers from her fatigue :) but should this not take place, it will be proper to endeavour to extract it at the time of a pain, by taking hold of the funis with the left hand, twisting it round the two fore-fingers, and at the same time the two fore-fingers of the other hand being introduced up between the funis and pubes, which are to be pressed against the funis towards the sacrum (at the time of extracting with the left hand), by way of pulley or fulcrum, to guide the placenta in a curved direction out of the uterus, so that it may pass agreeably to the passage through which it is to be conveyed; but if there appear resistance, and it does not readily follow, no violence ought to be used, for fear of breaking the funis or inverting the uterus: wait a little longer, and request of some one to apply the hand over the abdomen, rubbing it gently in a circular direction; which may cause the uterus to contract. Should the patient have been much fatigued by long labour, some mild cordial may be proper. In a little time, if there be pain, try gently again, but never pull for any length of time together: should there be a pain, with a discharge of blood, the uterus is then contracting, and the placenta, or part of it, separated: this will be the most favourable time to assist nature, by gently extracting by the funis.

When any part of the placenta can be felt with the finger, the separation is then complete; and in order to get it out of the os uteri, it will be necessary to press and gently knead that part with the fingers of the right hand: by so doing, the edge of the placenta will be brought down, and at the same time the operator must extract gently by the funis with the left hand.

But should it happen, that, after repeated efforts, the placenta cannot be removed, it will be prudent, after waiting two hours, to pass the hand into the

uterus in order to separate and extract it. Should the uterus, from the irritable state of its fibres, be firmly contracted in its body, being shaped somewhat like an hour-glass, and closely embracing the funis ; the uterus thereby forming two cavities, will prove troublesome.

Previously to this operation of introducing the hand, the outside must be well covered with lard, or some mild unguent ; and after being placed in a conical form, should be gradually introduced into the vagina ; and if the os uteri be somewhat contracted, that also must be gently distended with the fingers, and the hand slowly passed into the uterus. If the part contracted (below the placenta) be so great as to confine and press on all sides of the funis, a finger is to be gently passed between, and, by gradual means, finger after finger must be introduced, until the hand reaches the upper cavity.

It sometimes happens that the uterus may be contracted longitudinally, &c. ; but by cautious and judicious means of introducing the hand, and knowing well the natural structure of the uterus, every difficulty will be surmounted.

When the edge of the placenta can be traced with the fingers, it must be slowly and cautiously separated from the uterus, (which is generally done without much pain or difficulty,) and carefully brought down into the vagina, where it may be left to be expelled by the pains, or gently extracted.

When once the hand is introduced into the uterus, it ought not to be withdrawn until the placenta is removed. But instances have occurred where the contraction has been so great as to require an opiate, to relax the part before the hand could arrive at the placenta without using too great violence. Should this process have caused much irritation in the uterus, so as to produce feverish symptoms the next day, blood may be taken from the arm and some mild laxative medicine given.

When any part of the placenta happens by disease to be so fixed to the uterus as not to separate without that degree of force which probably may prove fatal to the patient ; under such circumstances, it will be prudent to desist, and remove so much only as readily gives way : however unpleasant this may be to the Accoucheur, it will be prudent not to risk immediate danger of an hemorrhage, which violence might occasion, but to wait the event of its being digested.

In all cases attended with considerable danger, the young Accoucheur will act wisely to call in one of greater experience, not only for the well-doing of his patient,

but also to be a protection to his reputation, as the world in general is more ready to condemn or censure, than to give merit its due reward.

In women who are disposed to have much discharge of blood after the expulsion of the placenta from the uterus, (or rather after its having been hastily extracted,) more than what is commonly contained in the uterine vessels, such discharge may be prevented by suffering the placenta to remain in the pelvis or vagina, even during some hours, unless spontaneously expelled: by this mode, time is given for the uterine sinuses to contract; and the placenta stopping the flux, the blood will coagulate: the patient, during this time, recovers her spirits. In short, when nature is not hurried in the birth of the child, flooding, in this stage, is not common. But where it happens that the placenta is only partially separated, the discharge of blood being very great, and the placenta not advancing by pulling at the funis; if danger be apprehended, the hand must be introduced.

Should the funis be separated from the placenta, by its not being firmly united, or from its small and flimsy texture, not allowing of the common gentle force used in extracting, it may be attended with some inconvenience to the young practitioner; and should the placenta not be expelled by the action of the uterus in due time (or if attended by flooding), being deprived of its immediate guide, by the loss of the funis, the hand must be introduced into the uterus (in the cautious manner mentioned), and no great difficulty will be found by the operator, if he has been properly instructed in the anatomy of the parts, and the different gradations and form which the uterus assumes during gestation and parturition, even if the case happen to be attended with a spasmodic stricture of the uterus.—But to return to the birth of the child.

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*Sect. 4.—The manner of treating the Patient and the Fætus after Delivery.—Brief Remarks on False Labour.*

As soon as the child is born, it must be placed by the side of the mother; and if the funis be convoluted round any part of the child, it ought to be instantly liberated. A gentle and regular pressure of the hand by some one, over the abdomen of the mother, gives much relief to her as a temporary supply to the sudden

loss ; it may also assist the uterus in contracting, and in excluding the placenta (if not already done), and prevent fainting, by supplying the pressure on the large vessels and-intestines, of which they have been so recently deprived.

The pulsation in the funis ceases first, at the part next the placenta, gradually diminishing, and finally stops at the child's abdomen in about fifteen minutes after its birth ; which may in general be the best and safest time to divide the funis, if the child breathe and cry. But, when the child breathes, cries, and is full of action, it matters not how soon the ligatures are applied to the funis, in the following manner. The first ligature, consisting of about eight or ten threads, and about six inches in length, with a knot at each end, is to be passed round the funis about three fingers-breadth from the umbilicus (or belly) of the child, sufficiently tight and well secured ; the other ligature, of the same description, is to be applied in the same manner and about the same distance from the first, nearer to the placenta ; this last is only to prevent any blood passing out. The funis must be divided between the two ligatures cautiously, (so that no part of the child be included in the scissars) ; and the child, being properly covered by what is termed a receiver, is to be given to the nurse. That part of the umbilical cord which adheres to the child, is to be wrapped in soft rag, and laid along the belly : this falls off in a few days, (at a line distinctly marked) ; which also would happen, were the cord not divided. The umbilicus is then to be covered with a bit of lint spread with ceratum album ; but should it be disposed to bleed, a piece of rag, singed, must be applied, or some other mild styptic, to prevent danger.

Whatever discharge of blood, &c. may be attendant on the birth of the child, which will naturally happen on these occasions, are now to be removed, and proper dry cloths passed under the nates, thighs, &c. to prevent the patient's taking cold, rendering her every necessary comfort until she has somewhat recovered from the fatigue of labour ; and it may be thought prudent to remove the remaining wet things, and place her properly in bed.

Before the patient is placed on the bed, to be delivered, it will be necessary that the shift should be passed up from behind and before, and by proper means secured over the shoulders ; at the same time a petticoat may remain loosely on, until the time of removing the wet things ; and then the shift to be brought down.

All the preceding process having taken place under the necessary bed-covering, prevents the air getting to the parts and giving cold, which ought ever to be cau-

tiously guarded against ; exposing the patient in any manner should be avoided, if possible.

After remaining in the same recumbent position about an hour, or two, more or less, according to circumstances, or as the patient has been used in her former labours ; the customary things (skin, &c.) placed previously to labour, and every wet article, must then be withdrawn from under her ; the bed, with its usual and necessary covering, will then appear clean and properly arranged, and the patient will find herself as it were fresh put to bed without being moved or suffered to sit up : by which means hemorrhage and fainting, which in many instances have proved fatal, will be prevented. These symptoms are liable to happen from a perpendicular position, owing to the aorta being deprived of the pressure occasioned by the distended uterus ; for which reason a proper bandage is generally passed over the abdomen and round the body of the patient. But this ought to be managed with skill ; for if applied so tight as to sit uneasy, it will do much hurt, and occasion dyspnœa ; if too loose, no good will be effected ; the intention can only be answered, when it feels as a comfortable support to the abdomen ; and this ought to be particularly pointed out to the nurse and the patient, if not seen to by the midwife.

The ceasing of the pulsation in the funis umbilicalis after the child breathes and cries, is attended with effects far different from those when it ceases before the breathing (though but in a slight degree) has taken place : in the latter, it may prove fatal ; but in the former it is a natural consequence, and a proof that the breathing or aërial life is completed, and that the circulating blood is now totally confined to the child. It may therefore be concluded that the child could not be injured by the funis being left untied and undivided ; yet convenience and neatness render it necessary to be done. But if the funis be divided, or a ligature passed round it, previously to the child having breathed, or but faintly so, it will be similar to a stoppage of the circulation by any pressure on the funis during its birth, which in a short time deprives the child of life.—Of this, further particulars will be mentioned, when speaking of preternatural labours ; with the necessary treatment to restore life.

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After the preceding observations on natural labour and its symptoms, it will be necessary for the young Accoucheur to know the difference between such sym-

ptoms, at its commencement, and those known as false pains, or FALSE LABOUR (*partus spurius*), which are not uncommon some weeks previous to real labour, from various causes ; such as fatigue, irritation of mind, colds, rheumatic affection, flatulency in the intestines, spasms of the abdominal muscles, costiveness, diarrhoea, strangury, &c. causing tenesmus, which will be the cause of a bearing-down, and the patient will be apt to think she is in labour. False pains do not intermit so regularly as true pains, and the latter are generally more fixed to one part, coming from the back round the side. But it will be sometimes rather difficult to distinguish them, and they ought to be early attended to, as, by too long a continuance, real labour may be brought on prematurely, from sympathy.

In all such cases, it is generally necessary to examine *per vaginam*. If the os uteri be not open, nor affected by the pains, and some length of the neck remaining, they cannot proceed from labour ; at the time of true pains, the os uteri will be found tense, dilated, and attended with pressure downwards ; and as soon as the pain is off, it will be lax and soft. When the pains are false, and the pulse denotes too great heat, it may be necessary to take some blood from the arm ; and in case of costiveness, a clyster, or some mild aperient medicine, will be necessary. When caused by strangury, balsamic demulcent medicine, with warm fomentations to the abdomen and pubes, and an horizontal position, will be proper, and after evacuations by stool and drawing off a few ounces of blood, if thought needful, opiates may be administered to advantage.

It is calculated, a larger number of male children than of females are born dead, or die soon after birth, the former being in general larger : this is caused by a greater pressure on the brain.

## CHAPTER IV.

## OF DIFFICULT (BUT NATURAL) LABOUR.



**D**IFFICULT Labour may be divided into different degrees.

First ; Those labours which continue long, and are tedious, yet are accomplished by nature alone.

Secondly ; Labours, in which art may be required, and where the life of the mother and child are both preserved.

Thirdly ; Such labours as may be accomplished by artificial means, but not so as to preserve the lives both of mother and child.

Various are the causes of difficult labours : they may proceed from weakness only ; but if a woman of weakly habit be disposed to corpulency, this may, in contracting the passage, increase the difficulty by consequent resistance. Pulmonary complaints will impede labour ; also when the pelvis has not arrived at its full size, or when the patient is advanced in years (the parts being rigid). The want of sufficient power to expel the foetus may be natural to a debilitated constitution, or may be caused from previous indisposition, such as diarrhoea, colds, fever, &c. with loss of appetite : or, in the poorer order, it may happen entirely from want of nourishment sufficient to support the powers of life. Under these and similar circumstances, the labour should not be hurried by any exertions of the mother, or other means, in the early stage, when unattended with alarming symptoms ; but it will be prudent to wait till nature, by gradual means, performs her office, which may in some cases be protracted even several days : during this period, the patient must be told, that although but little progress is making, nevertheless it may be the more certain ; and that in a short time all will terminate well. Every endeavour ought to be used to encourage her ; and let her be supplied with proper light nourishment from time to time ; and occasionally, if restless (particularly about usual bed-time), an opiate should be given. The pains, in languid parturition from debility, are slight and short, with long intervals ; but

every pain has some good effect, without any exertion of the mother, which ought ever to be avoided in the early stage of labour: by straining and forcing before the parts are relaxed, the patient will be exhausted without benefit, as previously observed; and towards the termination of labour, when exertions may be required, nature will be rendered so languid as not to be able to expel the child, and then assistance from the forceps will be requisite. Plying early with cordials will only afford a stimulus for the moment; the patient will be rendered the weaker for it afterwards; but towards the conclusion of labour, if nature appear much exhausted, some weak cordial (wine and water) may be necessary; as likewise the application of the forceps; but these, perhaps, had better be deferred until the head gets into the lower pelvis, pressing against the os externum, (*vide TAB. II.*) Yet should the labour not be attended with alarming symptoms, such as flooding, fainting, or convulsions, and the head of the child keep advancing, although but slowly, nature may complete her work.

Should the patient be asthmatic, or afflicted with any pulmonary affection, by which the natural powers are rendered deficient, not being able to draw in a sufficient quantity of air to inflate the lungs so as to assist in forcing down sufficiently for the expulsion of the child, without danger of bursting a blood-vessel in the lungs; it will be proper to use the forceps, as soon as the head has advanced into the upper chamber of the pelvis, and rests on the perinæum; (*vide TAB. I. and IV.*)

A difficult labour may proceed from an inertness in the muscular powers of the uterus, whereby a longer time is required for the uterus to accomplish its purpose; and if it should prove unequal to the task, the forceps must be resorted to. Frequent examination *per vaginam*, so as to irritate the os uteri, will, from sympathy, cause the different muscles of the uterus to act irregularly, and interrupt labour.—And it should ever be remembered, in languid difficult labours (particularly), to keep up the spirits of the patient; to give her proper light food, and opiates occasionally, when much exhausted and restless; and to avoid heating stimulating cordials. If the mind be greatly agitated from fear, and the spirits sink through apprehensions of danger, the powers of the uterus will thereby be diminished, the pains stopped, and convulsions likely to ensue; to prevent which, every persuasive method should be used to comfort and encourage the patient (which in general proves the best cordial); and he who may possess this gift from habit and address, is the fittest person to undertake the business of an Accoucheur, and every other department of medicine.

Some women are more disposed to a rigidity of the os uteri than others, particularly so with the first child, and also when advanced in years; which disposition of the parts must cause difficult labour; and this rigidity occasions severe pains in the back, and will be increased by too frequent and useless examinations *per vaginam*.

The rigid os uteri is attended with the greatest pain; but that which has a thick pulpy feel, is sometimes very obstinate and longer in giving way, and requires time to be properly and gradually dilated by the action of the uterus only, unless symptoms indicate the taking some blood from the arm: but this may be found more necessary in the rigid state.

When the os uteri happens to be uncommonly rigid, it cannot be beneficial for the woman to use great exertions by forcing down; this will only exhaust her strength: a little time, and the regular pains will be found to answer best, as the rigidity may even be increased by irritation from too great exertions. An emollient injection (*enema*) may be administered, and repeated, to help to relax the part, by way of fomentation; and an opiate will be useful to allay the irritation, particularly after losing a few ounces of blood from the arm, and when rest is required. Every practitioner of any standing knows that, in general, a little time is all that is needful under such circumstances; but in some irritable, full habits, the brain is apt to sympathize and produce convulsions, which, by taking away some blood early, may be prevented.

An impediment to labour will in some instances proceed from a rigid state of the vagina; but this is not so common: yet, should there have been adhesion of the sides from prior disease, it may require surgical assistance by the knife, if not very high up; and instances have occurred, where, the hymen having been unusually thick and tough, with a small aperture sufficient only to admit the male semen, an incision has been requisite, before delivery could take place.

By the omission to make water early in labour, the bladder may be greatly distended; and when the head gets down so as to press on the neck of the bladder, there will be a suppression of urine: in this case it may be necessary, in order to prevent laceration of the bladder, to draw off the water with the catheter, as noticed.

Difficult labour is also sometimes known to happen from a stone in the bladder; and if the head of the child be suffered to advance in this state, the destruction of both mother and child may be the result: and even should the child's head be

opened, there will not be a certainty of its passing through the pelvis and vagina without injuring the bladder materially.—The operation of cutting for the stone at the beginning of labour is undoubtedly to be preferred ; which may save the lives both of mother and child. This operation, it appears, has succeeded in several instances.—An Accoucheur may practise for a number of years without meeting with a case of this kind ; but he should ever be on the watch, by careful inspection and enquiries, to ascertain every infirmity attending his patient.

A diseased ovarium, by its falling down on the side of the uterus, may be some obstacle to labour ; also any tumour or excrescence within the uterus, os uteri, vagina, or os externum, if not previously extirpated ; a tumour in the uterus may be so compressed by the head of the child as not to be of any great obstacle to its passing ; but in cases where there is considerable resistance, rather than to risk puncturing a tumour (which may be attended with much danger), the treatment should be the same as in cases where there is a deformed pelvis.

The umbilical cord has been supposed to impede labour, either from its being uncommonly short, or by some means twisted round the child's neck. This last is not uncommon, and no doubt it may in some instances check the progress of the child, but perhaps not so often nor so much as it has been supposed. The cord possesses an elastic quality, as do all the soft parts concerned in parturition. When the child has advanced from out of the os uteri, and the cord is perceived twisted tight round the neck of the child, it should be immediately loosened.

When a mother has been suspected of having destroyed her child shortly after delivery, and the lungs have floated when put into water, it has been deemed a sufficient proof to condemn the mother as guilty of murder. But it is well known, that the child, either from the funis-umbilicalis being coiled round its neck, or from some other accidental cause, may have given only one gasp, so as to admit air into the lungs, and immediately die. The lungs will not float on water until they have been inflated by air.

This shows how cautious those who sit in judgment, and medical men when giving evidence, ought to be in all such cases.

Difficult labour may be occasioned by an uncommon thickness of the membranes : but however thick or tough they may be, it will in no instance be advisable to rupture them in case of a first child, nor at any succeeding labour, unless the pelvis is known to be capacious, and the soft parts proportionate ; and even then the membranes ought not to be ruptured merely on account of being rigid,

until distended at least three inches in diameter, when the os uteri is fit to receive the head of the child : (*vide TAB. XI. Fig. 1.*)

Another cause of difficult labour is the disproportion between the size of the pelvis and the head of the child ; and where the head happens to be more perfectly ossified than in common, though of but moderate dimensions ; yet, as it will not collapse and give way to the pelvis, it will in fact be attended with the same inconvenience as a large head, and require the longer time in passing.

The difficulty of the head passing through the pelvis will be much increased, if one or both hands happen to come down with the head ; and yet the child be delivered by the labour-pains.

Difficulty in labour may likewise be occasioned from the position of the head ; as when the face comes down towards the pubes instead of the sacrum, (*vide TAB. VI.*) it can pass in this direction, but it will be attended with more difficulty to the mother, and require longer time.

Also in face-presentation, when, unassisted by art, the child is delivered by labour-pains only, it may be attended with great difficulty, and much time required. And in all natural labours where the head is large in proportion to the pelvis, if it come in the most favourable direction, it must require the longer time to expel the child ; and, as before observed, the less exertion of the mother in the early part of labour, the better ; as her strength will be preserved towards the conclusion, when most wanted : and by avoiding unnecessary hurry and fatigue, the soft parts will acquire a proper relaxed state, and the delivery will be attended with less hazard, both to mother and child. But in cases where the head of the child is found to be so much compressed in its passage by the resistance it meets with, the bones riding over each other, the scalp swelled, wrinkled, and so changed, as that its appearance can hardly be described ; — where this happens, and the patient is exhausted from too great exertions in the first twenty-four hours of labour, and an ear can be felt, the forceps ought to be applied ; severe labour from impaction may produce such inflammation in the vagina and bladder, as to cause them to slough away and prove fatal, if not relieved in time by the forceps.

Where tedious or difficult labour happens from a general debilitated habit, and the strength is so exhausted as to occasion the head to remain stationary without compression, the forceps (only) can save both mother and child.

In some tedious labours, where the patient, from too early and long striving to

expel the foetus before it is possible for the soft parts to be sufficiently relaxed, the patient may be so exhausted as to sink into a kind of stupor, attended with incoherent muttering occasioned by her struggles, which force the blood into the head, and produce apoplectic symptoms which may prove fatal. But no judicious practitioner would suffer his patient thus to be exhausted, if he had attended in the early part of labour.

The mode of assisting or facilitating difficult labour by a section of the ossa pubis is now, I hope and believe, totally laid aside ; the disadvantages resulting from such experiments justly forbid the practice.

Those who hasten labour unnecessarily, either by instruments or by any other means, to the prejudice of the health and future happiness of either mother or child, are equally criminal with others who enter on the practice of Midwifery without having been properly and sufficiently instructed in the art. The latter may be compared to a person taking the command of a ship at sea, with only a superficial knowledge of its structure, and deficient in the art of navigation : the result of such conduct must be very perilous indeed.

CHAPTER V.

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*Sect. 1.—Of Complex Labour.*

THIS is accompanied with additional and oftentimes untoward symptoms ; such as having more than one child, floodings (uterine hemorrhage), convulsions, presentation of the funis umbilicalis, placenta (or a part) remaining in the uterus, a rupture or inversion of the uterus.

Twin cases, in some instances, may be classed with preternatural labour.

Plurality of children at one conception is known to happen. All animals of the uniparous kind may bring forth more than one ; but some species are more prone to have twins than others are.

It is computed, that, in the human subject, twins are produced once in about fifty labours. There are well authenticated accounts of three, four, five, six, and even seven children, having been produced at the same time ; but it is very seldom they are all born living, or, at least, they survive but a short time.

There are instances of triplets living to mature age. Three brothers at the same birth, by the name of Dunn, John, Michael, and William, (at the age of 30 years,) are now living in London : also, Anne, Susan, and Catharine Howell, sisters, born at the same time, at Malwyd in Merionethshire ; who, at the age of fifteen years (1796), were very beautiful, and so like each other, that the slightest difference could not be perceived. Instances of twins are frequently seen.

The child which lies next the os uteri, ready and convenient for its entrance into the pelvis, will naturally be delivered first, whether strong and large, or small and weakly ; and it sometimes will be found, from some accidental cause, that one child will be lifeless, and remarkably small, though produced in the uterus at the same time : for so soon as the ovum has entered the uterus, the Fallopian tubes are immediately plugged and secured.

Superfœtation is not known in the human subject; but it happens in some of the brute animals.

It is requisite, after the first child is born, and the funis properly tied and divided to prevent bleeding, to apply the hand on the abdomen of the mother, in order to ascertain whether there be another child left in the womb: and when it so happens, the abdomen will feel nearly as large as before the first child was born. It is possible the patient may have an ascites; but this rarely happens without its being previously known: and when there is not any more than the child delivered, the uterus will generally be perceived contracted, round, and hard, about the size of a very small child's head, (as observed when treating on natural labour): this will be a convincing proof there is not another child. But when it is perceived, by the size of the abdomen, that there are more, and no labour-pains follow, and the mother not greatly fatigued; it has been my general rule, in about one hour, and sometimes much less, according to the strength of the patient, after the delivery of the first child, to introduce the hand into the uterus, and bring down the next by the feet, which is easily managed, (the parts being prepared and sufficiently dilated by the first child,) and now becomes a preternatural case, which will be fully explained. In this manner, should there be more, every succeeding child is to be delivered, waiting about an hour or longer, if judged necessary, between each; supplying the patient with any light refreshment from time to time, if found needful.

But it will frequently happen, before an hour has elapsed, that, when there is more than one child, the pains will be renewed and the membranes perceived advancing into the vagina. In such cases, labour must be suffered to proceed, and the treatment be the same as with a first child: and if the head or breech present, either must be suffered to advance gradually by the pains; but should they prove ineffectual, and extra-assistance be required, the forceps, &c. must be resorted to, as in cases of flooding, convulsions, &c. If one or both feet present, the case will be more manageable; but even then the process must not be hastened.

If, by examination *per vaginam* after the first child is delivered, an arm or shoulder be found to present, the Accoucheur should immediately lubricate his hand and arm, and pass the hand gently into the uterus, and deliver by the feet: little or no difficulty will be found, the parts having been sufficiently dilated by the first child.

The children being now delivered, the next thing is to extract the placenta. Every child has its separate placenta, but generally united at the edges. Should

any one of them happen to separate before the second or third child is delivered, and fall into the vagina, and a flooding ensue, it will be necessary to remove that placenta, and pass the hand into the uterus, to assist the delivery of the next child by taking hold of the feet, and turning it, if required. The delivery of every child is to be managed by the same means; after which, should the flooding not cease, the hand is to be passed up for the placentæ or placenta remaining: but in general it will be found, that, when each child has been delivered, the placentæ will continue adhering to the uterus, in a small or greater degree; and the mode of extracting them is to take hold of the cord of one, by the left hand, and gently extend it, whilst the other cords are singly applied close to the first, with an equal degree of extension, gradually extracting them all together in time of a pain; the fingers of the right hand being introduced into the vagina, directing the cords towards the sacrum, to assist the expulsion in the line or axis of the uterus, (as previously observed). Pulling one of the cords at a time may produce a partial separation of the placenta, and occasion a flooding before the whole are separated. When the placentæ are all brought away, the uterus will uniformly contract, and all will generally terminate favourably; the sooner pressure is applied over the abdomen, the better; and this must be continued for some time, and then a bandage passed round the body.

It cannot be supposed but that the mother must be liable to more hazard with two or three children, than when there is only one; and therefore proper care and precautions will be particularly necessary, to prevent danger. Twin children, in general, being somewhat smaller than others, are not so often destroyed by pressure during labour.

The union of twins (which sometimes takes place) is likely to proceed from the adhesion of the membranes being broken through some accident, so as to cause the children to come in contact, and, like young branches or twigs of trees, firmly adhere, as if ingrafted; between which a circulation of juices takes place, (as formerly remarked in treating of the placenta.) But when it happens that the fœtus is irregularly formed, with complex parts huddled together, like monsters, the cause of such most probably originates in the ovum, from accidental jumble or rupture in the gelatinous ovaria.

*Sect. 2.—Of Flooding.*

FLOODING (hemorrhage) previous to, or during the time of labour, is liable to be attended with considerable danger ; particularly where the placenta happens to be attached about the cervix or os uteri. In common, little or no danger proceeds from flooding during the first four months of pregnancy where abortion threatens ; the uterine vessels being then small, consequently the discharge not so profuse in a short space of time, as at a later period ; nor even at five or six months, when the placenta is attached to any other part than the cervix or os uteri, provided proper means are used ; such as an horizontal position, cold applications of vinegar in cloths to the loins, cold water, ice, or snow, internally to the vagina ; avoiding all kind of cordials, wine, and styptic astringent medicines, &c. ; having but very slight covering to the bed, letting as much air into the room as possible, which, in floodings from whatever cause, will be found highly beneficial. Fainting checks hemorrhage, the ruptured vessels then constringe, the blood coagulates and plugs up their mouths ; and the patient, by persevering in this mode for a proper time, and being supplied with cold broths and other light nourishment not possessing any quality likely to increase the impetus of the blood, will, in general, be enabled to go the full time of gestation. But, notwithstanding the strict observance of all these precautions, should the flooding return severely, after having been checked or moderated, there will be little doubt but that the placenta is situated about the cervix and os uteri, which may have partially separated.

If no examination have already taken place, it will now be absolutely necessary ; and if the finger cannot reach sufficiently through the os uteri by the common mode of examining, to ascertain whether the placenta be there seated, it will be proper to lubricate the hand and pass it cautiously into the vagina, and the finger will then be enabled to reach through the os uteri ; and if the placenta be there discovered, it will be known by its peculiar spongy feel, very different from that of the membranes. Passing up the hand at this stage of gestation, with a view to turn the child and deliver, may give much pain and be attended with considerable difficulty : therefore, by prudently waiting and cautiously attending to the symptoms, so as not to suffer the hemorrhage (of which the sudden gushes of blood, the time it has continued, and state of the pulse, will be the guide) to

continue too long before an attempt is made to turn the child; if the hand be introduced prior to some relaxation of the parts, there must, in turning the child, be great danger of rupturing the uterus, which is naturally small at six months pregnancy; but yet, if the discharge should have been of so long continuance that the patient has become exceedingly exhausted, the pulse flag, and it is ascertained the placenta is over or near the os uteri, it may be better to run the risk, than that the woman should be lost, or remain undelivered.

From about the sixth or seventh month of gestation, the uterus and its vessels increase much in magnitude; the cervix beginning to distend, will naturally cause a partial separation of the placenta, if there seated; the vessels being at this stage of gestation supplied with a larger portion of blood, flooding is then liable to be more profuse and attended with greater hazard, if not properly treated.

When women die of hemorrhage about the fifth or sixth month of gestation; this will in general be occasioned by the placenta being seated over the os uteri. But no woman *ought* to be lost with flooding, provided she has assistance in due time.

When examination takes place, if there be congealed blood connected with the placenta and os uteri, all possible care should be taken not to remove any part of such coagulum, as being some check to the discharge; and by giving a little time, the vagina, &c. will become more relaxed. Particular caution should likewise be observed, that coagulated blood be not mistaken for placenta.

The placenta, when situated over the os uteri, is much thicker than in common, but less in circumference: should one part be discovered to be separated from the cervix uteri, the hand will more readily be passed up in that direction between the uterus and the membranes; and so soon as the membranes are ruptured by the fingers, the feet of the child will be easily traced; but if the placenta be not partially separated, so as to be discovered by the fingers, and that it plugs up the os uteri and cervix, a finger is to be pushed through it, and by means of a gentle rotatory motion, the hand will follow into the liquor amnii (if not discharged) with little or no difficulty.

In bringing down the child (as in all preternatural cases) it should be done gradually; the pressure of its body, as it advances, will stop the flooding; and should there be pains, the Accoucheur must extract only at such times, resting between; but if there be no pains, it may yet be proper to rest at intervals, for, by hurrying

the birth, the woman may be fatigued so much as to be in danger of instant dissolution : the flooding being stopped by the child's body, the more immediate danger is checked; the head of the child being suffered to remain a little time in the vagina, will give the uterus opportunity to contract on the placenta, by which means it will be sooner expelled, and the flooding stopped.

When flooding occurs early in labour, nearly or about the full time of gestation, caused by a partial separation of the placenta from some part of the uterus; it being the first child, and the vagina not dilated ; the introduction of the hand into the vagina may also be attended with difficulty, and give great pain. Under such circumstances, it may be advisable to wait, if the flooding be moderate and attended with slight pains ; but the patient must be carefully watched, and not suffered to go on too long without assistance.

In all cases where there is flooding, the woman is truly more or less in danger ; and in general, the sooner labour is completed, the better ; which must be done by dilating the os uteri with the fingers (at the time when unattended with pain), and cautiously passing the hand into the uterus. When two fingers can be introduced, the dilating of the os uteri will be rendered more easy, until finger after finger be passed, and by slow means the hand will be enabled to reach the feet of the child and bring them down, in the manner recommended for preternatural cases.

Should the woman be of a full habit, or the flooding occasioned by previous accident, the taking blood from the arm, being kept cool, an horizontal position (which should ever be observed in all uterine hemorrhages), with some mild opiate, the symptoms may either go off, or labour proceed, and terminate naturally and safely.

In introducing the finger to dilate the os uteri, when the flooding is great, and unattended with pain, the stimulus occasioned by the fingers will sometimes bring on pains, and even produce labour, and thereby enable the uterus to expel the child : and in cases, where the patient has not been too far exhausted, it has been recommended to rupture the membranes either with the finger or by means of the point of a probe, to cause a discharge of the waters ; that thereby the uterus may be enabled to contract and produce pains ; by which, if assisted occasionally by gently irritating the os uteri with the finger, labour may be forwarded.

But it should be observed, if the parts are sufficiently relaxed for the fingers and hand to be easily introduced into the uterus with safety to the mother, and to

deliver by the feet, the child will be more likely to be saved, by not being immediately compressed, from the action of the uterus, after the discharge of the liquor amnii : and if the mother be much exhausted by the loss of blood, delivery should immediately follow.

When flooding is considerable, and unattended with pain, the greater will be the danger ; the uterus in that case not having sufficient energy to act, the flow of blood will be constant, and may prove fatal, if delivery be not expedited ; and examination should immediately take place, to ascertain what part presents. Should the head of the child be discovered so low down in the pelvis that it cannot be returned (with a view of bringing the feet down), the forceps must be applied to extract the head.

Flooding cases, at, or a little previous to the full time of gestation, are always awful to the young practitioner ; and to judge how far it may be proper to wait, or to proceed immediately to delivery, must require some experience : but of the two, it will be more judicious to attempt early delivery, rather than suffer it to go on too long ; for although dilating of the parts in order to introduce the hand may be rather distressing to the mother (before they are much relaxed), it ought not to be neglected when danger points out the necessity : the operator, however, should proceed cautiously ; and where speedy delivery is requisite, the os uteri will generally be found more or less relaxed.

When severe flooding attends labour, the prudent man will have danger in view, yet never shew it in his countenance. *Cavendo tutus*, must ever be in mind.

Women, in general, are not apt to be alarmed at flooding, if unattended with pain ; but here is the greatest danger ; it is pain which distresses and alarms the patient, (as noticed;) but pain, in such cases, is her best friend.

A midwife who has been frequently called to patients in labour where flooding has been suffered to continue a length of time, and the patient thereby become languid and nearly exhausted, will by the first glance determine her fate. But a woman ought never to be suffered to die undelivered : although the chance of surviving be ever so small, still that chance is her just due : besides, there is a possibility of saving the life of the child, if the placenta have not been entirely separated from the uterus any time. In this state of things, the os uteri will be discovered loose and totally inelastic, yielding on all sides ; the hand may then be introduced through the os uteri without the least difficulty : but even in these critical moments, violence ought not to be used ; for, by being too hasty, the

patient may die under the operation; whereas, if cautiously and judiciously managed, her life may be preserved; and as soon as delivered, the hand ought to be gently pressed over the abdomen. In some instances the placenta has been expelled without the *fœtus*.

In all cases attended with an uncommon loss of blood, if the patient survive any time, a dropsy is liable to terminate life, particularly in women of a fat loose texture.

In treating on the use of the forceps, (in a subsequent part of this work,) it is observed, the longer their application be delayed, the more ready and easy will the operation be: and the longer and greater the flooding, the more will the *os externum* and *os uteri* be dilated, the hand may thereby be introduced with less difficulty, and the child more speedily delivered: but, when called early to cases attended with imminent danger, we are not to wait, but must proceed to deliver in due time, in order to preserve two lives; and that of the mother, in case of flooding, is always exposed to the greatest danger, and should ever be first in consideration.

Should a discharge of blood proceed from slight rupture of the *os uteri* or *vagina*, from distention through labour, it will not be likely to be attended with danger.

## CHAPTER VI.

## OF PRETERNATURAL LABOUR.

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*Sect. 1.—First Division.*

THE first kind of preternatural birth is, when the lower extremities present.

Having previously observed, that preternatural cases do not (or but seldom) require the aid of instruments, and as such cases have been particularly demonstrated by teachers of Midwifery at their lectures, it might not be so necessary to treat here on the subject: yet, as they but seldom occur, and memory is liable to be deficient, I shall just observe: That in cases of twins (or more), although the first child may present with the head, and be delivered as by a natural labour, it may be found necessary, after waiting a due time, to introduce the hand and extract the next child by the feet; making it a preternatural case, (as just remarked). Therefore it will be proper to observe, that when the hand is passed through the os uteri in a conical form, and with great caution, one foot or both must be taken hold of, and slowly brought down at the time of a pain (should there be any), and if the face of the child do not lie towards the os sacrum, it must be gradually turned so, as it advances: when the body of the child is partly out of the os externum, the arms generally drop out; but if not, a finger may be passed up, and the arms brought down, one at a time, and placed on each side of the body: next, a soft cloth is to be applied over all, to prevent the operator's hands from slipping, at the time of extracting; which is to be done by moving the body at the same time from side to side. When the chin is supposed to be resting on the rim of the pelvis, a finger or two of the left hand should be passed up, along the belly and breast of the child, and introduced into its mouth, to assist its advancing and prevent the chin from hitching.

In preternatural cases, unless great caution be observed, the child will be liable to be deprived of its life, from the pressure on the funis stopping the circulation.

When the pressure is discovered to be so great that the pulsation in the funis becomes languid, the sooner the child is delivered, the better: should the pulsation cease but a very short time, the child cannot survive; and when the funis is greatly on the stretch, it will be prudent to endeavour to slacken it with the fingers, by bringing some part of it forwards from over the rim. When the pulsation in the funis is readily felt, the child is safe. The body, as it advances, must be delivered upwards against the abdomen of the mother, in the arched direction, accommodating to the vagina; and caution must also be used to prevent laceration of the perinæum.

When the hand is in the uterus, should there be more than one child perceived, carefully avoid taking hold by a foot of each child at one time; which may be easily prevented by due caution.

When the feet present at the beginning of labour, they are to be brought down, and the child delivered in the same manner. Yet, thus circumstanced, it may sometimes be expelled by the labour-pains only, but not without some risk to the child.

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### *Sect. 2.—Second Division.*

THE second kind of preternatural birth is, when the upper extremities present.

Any presentation but the head is termed preternatural. When a hand presents in the vagina without the head, it ought to be immediately returned; and if it cannot be kept up above the rim of the pelvis, the child must be delivered by the feet. Should an arm present out of the os externum; if it cannot be returned, so that the child may be delivered by the feet, there will be but little or no chance of its surviving: yet it *may be* delivered, (which has been proved in many instances,) and that by the pains and efforts of the uterus; the child will be turned on its axis, so as for the breech to present, and be delivered as a breech-case. Should it be a large child, the pains weak, and attended with much difficulty in being expelled by the pains; when the breech presents, a finger may be passed up over each groin alternately, in time of pain, to assist its delivery. When the

legs fall out, through the os externum, it then becomes the same as when the feet originally present; and the delivery is to be accomplished in the same manner.

Dr. Denman discovered, and was the first who published; that in cases, where one or both arms presented out of the os externum, (the head remaining above the rim of the pelvis, or wedged in,) and not possibly to be reduced, with safety to the mother, the child will by the action of the uterus be turned (as it were) on its axis, and be expelled by the pains and efforts of the mother, with the breech foremost; but the child is rarely known to survive the contractile violence of the uterus necessary for its expulsion. This may in some measure account for women in the state of nature being delivered without proper assistance, and so soon recovering, (as related by different authors;) which is also favoured by their constitutions being healthy and robust; not liable to nervous affections, or plethora, from indolence, or too free living; where no impediments happen to interrupt nature, as are met with in civilized and refined nations, and where the constitutions being pampered by luxuries, their texture and various bodily infirmities render them susceptible of evils, which those in a state of nature do not experience. But, it may be supposed that human nature, in all nations, and of every description, will be liable to anomalous labours under particular circumstances; such as are accompanied with flooding, convulsions, &c. which must at times prove fatal to the mother, though but seldom.

## CHAPTER VII.

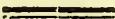
## OF THE PRESENTATION OF THE FUNIS UMBILICALIS.



Of this there are two kinds; *original*, and *accidental*.

The means of assisting to prevent pressure on the funis is the first object for preserving the life of the child; and (as observed when treating of the cord) if much pressure be continued on the funis but for the space of a few seconds, the child becomes languid; and if circulation be suppressed for one minute, the child is in the utmost danger.

Various are the modes recommended by different practitioners for replacing the protruded cord, when below the rim of the pelvis; but no one which is likely to answer in every case.—If, when the funis has passed through the os uteri into the pelvis, and it can be returned above the rim of the pelvis, and there retained, the point is gained; but to succeed in the early stage of labour will be found difficult, if not impossible.



*Sect. I.—Original Presentation; commencing early in Labour.*

WHEN the funis gets through the os uteri early in labour, and that not being dilated more than the size of a shilling, it may prove fatal to the child, particularly if the first labour; the parts being then more rigid, the os uteri giving way so very slowly, consequently the stricture on the protruded funis will be the greater. This is understood as *original* presentation, at the beginning of labour.

The preservation of the life of the child is ever to be wished; but this cannot always be attained, without some risk to the mother's life. In endea-

vouring to save the child early in labour, by introducing the hand with a view of turning, when the os uteri is only open sufficiently for a small portion of the funis to have escaped through (after the membranes by some accident have been ruptured), the violence occasioned in so doing may be very injurious, if not fatal to the mother. On the other hand, the forcing down of the funis through the os uteri, and repeated pressure at every pain, must obstruct the circulation; which too frequently destroys the child.

If, by any contrivance after, the funis has been returned through the os uteri (during the absence of pain) and can there be secured, well and good; but so difficult in general will the latter be found, from the forcing of each pain, that the funis must be apt to return; and as every case is liable to have something intervene, different from another, which may be an obstacle to success, much will depend on some prompt idea and recollection of the Accoucheur, in this instance, and in other untoward symptoms. I have succeeded by the following mode (after meeting with a few unpleasant cases) in the presentation of the funis early in labour. But it is not likely this should always be attended with success: I never had an opportunity of trying the experiment more than once, and the child was delivered safe and alive. The apparatus is simple, cannot do any hurt, and may sometimes be found highly beneficial.

I procured a tube made of white metal, the calibre of which was a little less than the space of a shilling, its length about seven inches, the upper end curved, somewhat like unto the female catheter, to favour its passage through the os uteri; also a second tube, much smaller, to be introduced up the large tube by way of piston, the substance of which at the upper extremity, for about a quarter of an inch, was thicker, and nearly as wide as the outer tube, and having at the lower end a knob by way of handle (through which the hollow extends), with a stop or shoulder, to prevent its being pushed farther than may be necessary.

This instrument is to convey a sufficient quantity of close-grained compact sponge through the os uteri, by way of plug (or pessary), to prevent the funis being forced down into the vagina in time of pain: such sponge to be properly chosen and shaped, thick and round, wetted with water; and after being well pressed out, a very small tape, by means of a needle, is to be passed through the centre of the sponge, &c. and down the inner tube (or piston), long enough to project some inches beyond the knob, or handle: the tape is to be secured with

a proper knot over the sponge, to prevent its being drawn through. The sponge is next to be pressed into the upper extremity of the large tube, by means of the fingers ; drawing down the tape at the same time : but previously, a little oil may be applied to the upper part of the tube in which the sponge is to be placed, to facilitate its passing out of the tube through the os uteri, by means of the piston, (in a manner somewhat similar to the pressing of any fluid through a womb-syringe).

The piston (or movable part) being straight, it cannot be passed higher than the beginning of the curvature of the outer tube (or barrel) ; but an elastic cork, about the size and shape of those used for glass quart-bottles, somewhat smaller than the cavity of the tube, and of just sufficient length to be pressed up to the extremity, so that the sponge is conveyed through the os uteri, will answer the purpose. This cork is also to have a hole through its centre, the whole length, burnt with a wire, and, that it may bend readily to the curved part of the barrel, four or five notches are to be cut at equal distances on one side, and a piece of cork taken out of each : on the opposite side are to be made as many incisions just between the notches : by this means, as the cork is pushed up by the piston, it will shape to the curve of the barrel, and thrust the sponge out. The cork is to be placed in the barrel so that the notched side may be against the concave surface.

Possibly, this mode of introducing sponge through the os uteri may be of use in suppressing flooding, under certain circumstances, where the placenta is not connected with the os uteri. But as it was originally intended for cases of the presentation of the funis, it may not be improperly termed umbilical pessary.

As soon as a pain is over, and the projecting part of the child has receded (which is generally the case after every pain), the curved end of the tube is to be introduced through the os externum, the vagina, and some little way through the os uteri, guided by two fingers of one hand, and there kept steady : this being done, the knob or handle of the piston is, with the fingers of the other hand, to be pressed against sufficiently to thrust out the sponge through the os uteri ; which is to be done only when the pain is off. The sponge, after being discharged out of the tube into the cervix uteri, (being of an elastic quality) will naturally expand, and by the surrounding moisture it must absorb, will help to distend it and render it more capable of resistance, and, when pressed against by the presenting parts, will

help to dilate the os uteri and prevent the return of the funis, until two or three fingers can be introduced to distend the parts sufficiently for the hand to pass into the uterus, in order to turn the child, and deliver by the feet : but it ought to be remembered, at the time of passing up the hand into the uterus, to convey the funis up also, out of the way of pressure. As soon as the sponge is lodged beyond the os uteri, the apparatus should be withdrawn. The tape being left behind, the extremity of which may be held by the fingers of one hand, to keep the sponge somewhat steady to prevent its slipping on one side, but not to use any force, as thereby it will be withdrawn ; and all the process must be renewed ; but to prevent the sponge from being early discharged by the pains, &c. a finger being applied against it may be of some help to keep it steady.

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*Sect. 2.—Accidental Presentation ; occurring later in Labour.*

SHOULD it happen for the head of the child to be partly in the pelvis, and for the funis to protrude down by its side, the pressure will be greater than that occasioned by any soft parts of the child ; consequently, the greater danger. In this case, should a pulsation be perceived in the funis, it ought to be returned as soon as possible above the presenting part, so soon as a pain is off, and followed up by means of the vectis, or a blade of the forceps (if so it can be contrived), with some soft, pliable substance, such as fine tow, properly prepared, silk, muslin, or a thin slip of very soft sponge, which, if retained above the rim of the pelvis, may prevent a return of the funis, until the head is sufficiently in the pelvis, suitable for the application of the forceps or vectis.

It is not always that the child dies during the time of parturition when the funis protrudes below the presenting part of the child. The cord may happen to lie on that side of the pelvis where there is the least pressure ; if not, it will be judicious to endeavour to place it so, if it cannot possibly be carried up above the rim of the pelvis. Should the pelvis happen to be roomy, or the head small, so as to favour the life of the child, and the funis so situated as to admit of circulation, during the absence of pains, the child may be born alive, without manual assistance ; if an arm present, it is to be returned (if practicable) ; and at the

same time the operator must not forget to carry up the funis out of the way of pressure into the uterus, with his hand, for the purpose of turning the child, that it may be delivered by the feet.

The proper time to attempt the return of the funis above the rim of the pelvis, is during the absence of pain, (as previously remarked); and the patient should be placed on her side, with the shoulders lowermost, to facilitate the reduction. But if the funis cannot be returned so as to be retained above the rim, and the head is not too low down to be pushed up, and for the child to be turned, it will have the better chance of being born alive, though with some risk to the mother; which ought ever to be well weighed. Should there not be any pulsation felt in the funis, the circulation being totally stopped, the safety of the child is then at an end; the mother's life is now alone to be attended to, and the labour must be suffered to proceed, in whatever way the child presents, with the usual necessary assistance of the Accoucheur.

In case of a breech-presentation, accompanied with the protrusion of the funis, it will be equally necessary to pass it up above the rim.

When the funis is found to protrude beyond the os externum, it ought immediately to be returned into the vagina, to protect it from external air, which will be as destructive to the child as any internal pressure, from whatever cause. Such circumstances may happen when the funis is uncommonly long.

Prolapsus of the funis umbilicalis may be occasioned by the sudden discharge (owing to some accidental rupture of the membranes) of the liquor amnii in which the funis is floating, when it happens to be in large quantity: the funis is then, consequently, very likely to precipitate, and the more particularly so if in an erect position, and the length of the funis be very considerable.

Every practitioner of much experience, and nice in his observations, must have remarked by the touch, a presentation of the funis, before the membranes are ruptured. This notice is sufficient, to caution the practitioner against breaking the membranes; (there being no danger until that happens,) as then the funis will naturally be the first part to pass into the vagina.

There are some women, who, from peculiar causes, are more immediately liable to this accident, and repeatedly so; as well as others, who have frequent preternatural presentation of the feet, &c.

## CHAPTER VIII.

## OF PUERPERAL CONVULSIONS.

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**T**HERE is nothing more alarming, during the time of labour, than convulsions. Should the habit be plethoric, the taking away blood freely from the arm, and early, may be of much benefit to relieve the brain, and prevent apoplexy. It has been recommended by Dr. Denman, and with much reason, in order to suppress the fits, to sprinkle the face of the patient with cold water, by means of a large bunch of feathers (and that very freely), just as convulsions appear to be approaching; and to repeat the same at the commencement of every fit; which will be likely to check their impetuosity, and prevent serious consequences. But as the same means, by frequent repetition, is apt to lose its effects, substituting others, alternately, may answer better.

After making use of the cold water to the face (as directed) with benefit, but finding it did not always succeed, and seeing a large hand-bell (such as letter-carriers use) standing in a corner of the room, I caught it up, and rang it over the patient's head, at the time recommended for the application of the water; which had a good effect; and by the use of the bell, and cold water, either separately or both at the same time, the patient was enabled to go through the labour without any serious injury.—At another time, I made use of a watchman's rattle close over the head of the patient, and with success. Possibly other similar means might be administered with advantage; such as beating of a drum, the sound of a trumpet, &c.

This peculiar irritable state of the uterus, &c. is well known not to happen to every woman; but where it does, the organs of hearing, between the fits, are in general very acute. The involuntary spasmodic efforts of the uterus for the expulsion of the child are the original causes, and in habits where the uterus partakes of such peculiar irritability, (and this irritability being recoiled to the brain or its meninges,) these sensitive parts are likely to participate, and to produce those

violent spasmodic contortions of the limbs and features known as convulsions; which naturally must determine too great a quantity of blood to the head, so as to be likely to terminate in apoplexy.

But if the nervous influence (so termed), producing irritation in the involuntary muscles (of the uterus), and the consequent sympathy, are by some powerful external sensation diverted from such parts, by means of a sudden impression on the cutaneous nerves of the face, or auditory organs, (only momentary,) it will be gaining a great point, as, by a repetition of the preceding process, two lives may be saved: the nearer the sensation is applied to the brain, the more likely to succeed.

Few people but must have observed the effects of surprise, in those involuntary spasms on the diaphragm, and from irritation on the nasal membrane, known by the terms *singultus*, *sternutatio*, &c. These effects may in common be suppressed, on a similar principle, almost instantaneously; but their causes are not so powerful, nor attended with pain, and generally continue for only a short time.

Every Accoucheur must have noticed (as formerly remarked), that, on his entering the room of the patient, the pains are less, but more generally subside for a short time, merely from mental alarm; the wandering spirits (nervous influence) are to be recalled to the central point (*sensorium*) or fountain of sensation, as quick as thought, by any recent cause more alarming to *nature*, than the present; and thereby the part affected is relieved for the moment: and it has been often known, in certain morbid complaints, either attended with pain, or without, that such sudden efforts have not only given temporary relief, but have effectually prevented the recurrence of the disease.

As soon as puerperal convulsive paroxysm is over, patients in general do not appear to have any recollection of what has past, let their struggles have been ever so severe. Where there are regular intermissions of fits, the danger may not be so great as when, after a fit or two, a stupor succeeds: in this state, spasmodic or sanguineous apoplexy may have taken place; yet labour will go on, and the child keep slowly advancing; but, so soon as manual assistance can be rendered with safety, it ought not to be neglected. When the os uteri is so far relaxed, as, without much resistance, to give way for the hand to be passed into the uterus, it ought to be done; and to deliver by the feet; using gentle means; or if the head of the child be sufficiently advanced into the pelvis for the forceps to be applied, the Accoucheur should proceed without loss of time to extract the head.

The early taking away blood from the arm, temporal artery, or jugular vein, may be of great benefit; after which, stools ought to be procured by means of some brisk purgative, and by clysters; next, opium may be administered in some convenient liquid, by way of clyster; which will check the too great irritability of the uterus. The losing of blood has been recommended even to forty ounces, and upwards, in a few hours. Some constitutions may support this loss with advantage; but it will not suit every one. The drawing off blood, to a certain extent, will reduce the stimulating powers, by emptying the vessels of their vital principle, and thereby irritability will be extinguished even to a *deliquium animale*. But every constitution must not be treated alike.

If, at any time previous to labour, or at its commencement, the patient complains of fulness in the head and giddiness, bleeding freely may be the only means of preventing convulsions during the time of labour. The procuring of proper stools ought not to be neglected, as such symptoms may be occasioned or increased by a costive habit of the bowels, or flatulent state of the stomach.

External applications, in time of puerperal convulsions, may be of use to one person, but not to another; and possibly the same thing will not benefit the same patient twice: still, it is our duty to try every feasible means for relief, and particularly that which has been known to succeed; and the sooner the better, before a repetition of the fits may affect the brain materially. But if the taking away blood be first resorted to, the external applications, as recommended, will have the better effect.

## CHAPTER IX.

## SYMPTOMS INCIDENTAL TO DELIVERY, AND SUBSEQUENTLY OCCURRING.

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*Sect. 1.—Of Retention of Urine after Delivery.*

SHOULD it happen that the patient cannot pass her water in eighteen or twenty hours after delivery, flannels dipped in a strong infusion of chamomile flowers, in hot water, sprinkled with some kind of spirits, or even with water alone, should be applied with a proper degree of heat over the pubes; and if it fail to give relief in the space of one hour, the catheter must be introduced, or the bladder will keep distending until it bursts, and may occasion the death of the patient speedily, or, if the bladder should be ruptured at the part close to the vagina, she will be rendered uncomfortable during life, by the constant discharge of urine. When the midwife lives in the country, at a great distance from the patient, and may not be able to see her the next day, it will be always judicious to leave particular directions with the nurse, (in case any untoward symptoms should happen,) for her to make use of such applications as generally give relief: the sooner they are applied, the better: not more than fifteen or sixteen hours should be exceeded (if no urine appears) before the fomentation must be used, and the Accoucheur should be made acquainted, if no relief be given. A retroversion of the uterus sometimes takes place in a day, two, or three after delivery, (before the uterus has completely contracted,) from the distention of the bladder, produced by the urine being suppressed; which has been remarked when treating of *natura* labour.

Distention of the labia pudendi, from extravasated blood, occasioned by some small arterial vessel being ruptured through mere pressure of the head of the child, interrupting its regular circulation, and thereby diffusing its contents into the cellular membrane of the labia, produces a most formidable enlargement of the part, which may not be perceived by the patient until some hours after

labour: this distention may be equal in size to a large hand clinched. The best mode is to leave it to nature; the vessels *must* stop bleeding by the coagulum, of which the swelling soon becomes one solid mass, and in the space of a few days the skin will give-way, slough off, and the congealed blood thereby get vent; after which, some soft applications, as lint, &c. will in general be all that is necessary: but, should the constitution be in such a state, as to give the wound a sphacelous appearance, other applications, of a warmer nature, will be proper; and bark and wine, to correct the habit, will also be necessary; but this accident rarely occurs.

A more common complaint is for one of the labia to inflame and suppurate from some cause, as from colds, fever, and hard labour, or by the pressure of instruments improperly used. In this case, if the pus be not discharged with the application of emollient poultices, and it be found convenient to open it with a lancet, no greater puncture should be made, but just sufficient for the matter to be discharged: by this mode it will heal in much less time, and prevent unpleasant symptoms, which are apt to attend a large opening in these parts, and particularly at such times.—It is not uncommon for one of the labia pudendi to inflame, swell, and suppurate, from irritation, either by some local cause or indisposition of habit, quite independent of labour; but from whatever cause, when necessary, a small puncture with a lancet will always be judicious. **Œ**dematous swellings of the labia chiefly happen in the latter months of pregnancy, the effects of uterine pressure; and sometimes may become so large as to prevent walking: if about the seventh month, the part may be scarified for a temporary relief, but not later: a recumbent position will give some relief, and fomentations, with the addition of rectified spirits, sprinkled over the flannel cloth.

I have but partially noticed the various diseases incident to women and children: these having been so particularly treated of by various authors, it was on that account judged the less necessary.

*Sect. 2.—Of Puerperal Fever.*

A GREATER number of lying-in women are supposed to have died from puerperal fever than from any other cause. But of late years, this fever is not so frequently met with, owing to the improved operative part of Midwifery, and the precautions used during pregnancy; such as temperance, keeping the bowels properly regulated, and occasionally losing small quantities of blood from the arm; also through the administering laxative medicines, the second or third day after delivery, and repeating them freely, to those of a full habit, every other day; being supported chiefly by liquids for several days (if found necessary), avoiding animal food, wines, spirits, &c. ; observing great caution (the weakly particularly) in not getting about too soon, taking cold, eating improper things, &c. But should inflammatory symptoms appear, with much pain about the region of the uterus, and uncommonly frequent pulse, &c. the sooner blood is taken from the arm, the better: also a free use of clysters, purgative medicines, saline draughts, with antimonials, or having a very few grains of pulvis ipecacuanhæ, may be necessary; likewise fomentations to the part in pain, of decoction of chamomile flowers, to which may be added a small proportion of camphorated spirits of wine and tincture of opium, sprinkled over the hot flannels used on such occasions. After the inflammatory symptoms have subsided, the bark and tincture of opium, in small doses, may have their use internally.

We find different constitutions are differently affected, with an apparently similar kind of fever at its commencement. In the plethoric, the symptoms of most fevers will be found more violent, where blood-letting may be freely used; but in others of a different texture, very early bleeding may be of some use; but a repetition may not be so well: sedatives, to allay increased irritation, are often-times beneficial. This discrimination must depend on the judgment of the medical practitioner.

Sometimes there is a distinct and considerable inflammation of the peritonæum (peritonitis); and when it happens conjointly with the puerperal fever, the distension of the abdomen and other symptoms will be the greater: in such cases, early blood-letting will be attended with much benefit, together with laxative saline medicines, and fomentations to the abdomen.

The delicate irritable constitution is liable to spasmodic, nervous sensations after delivery, either from the great exertion of the abdominal muscles, &c. during labour; or from an affection of the diaphragm producing pain, dyspnœa, palpitation, &c. Sudden exposure to cold, or some slight alarm, will often produce shivering fits, with pain in the back, quick pulse, &c. which are not uncommon within the week, and by nurses observed as a disease, termed *weed (ephemera)*, seldom lasting longer than a day or two; which symptoms are to be treated as they appear, with internal anodine, antispasmodic, gently aperient medicines, and warm external applications to the part in pain.

The milk fever (*febris lactea*) is now seldom known, from the prudent precaution of putting the child to the breast early, and the free use of opening medicines.

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### Sect. 3.—Of Puerperal Mania.

THE peculiar irritability attendant on women at this time, renders the mental faculties, as well as those of the body, in some constitutions, more susceptible than at any other; even so as to produce delirium. The time of puerperal mania commencing is rather uncertain; it may happen in the first week, or it may be two, three, or four weeks after delivery. Women who are thus attacked, are affected very differently. One may be suddenly seized with delirium, raving, and talking incessantly. In another it appears more of melancholy, and is later before it makes its appearance: but this kind is not so frequent as that of wildness in the countenance. If it proceed from agitation of the mind, from any accidental recent cause (or from whatever cause), that must be attended to, and every means used to soothe and quiet the spirits: if from local bodily irritation, such as may be produced in the mammae, caused by suckling the child, weaning must be the first step. The particular mode of treatment must be guided by the symptoms. If very early, and violent inflammatory symptoms appear, originating in the meninges of the brain, with delirium, the antiphlogistic treatment must be applied, in proportion to the symptoms (and a blister on the head): but if it partakes of the melancholy cast, a different mode must be pursued. Whenever a patient has had a complaint of

this kind previously to any lying-in, or in a former lying-in, the greatest caution must be early taken to keep the mind tranquil, and to give her every assurance of her doing well. This malady seldom proves fatal, nor of any long continuance, if timely and properly attended to.

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#### Sect. 4.—*Of Lochial Discharge.*

THE lochial discharge is understood to be that which takes place after the expulsion of the placenta; which diminishes, as the uterus contracts. At first, the vessels of the uterus pour forth chiefly red blood; but after a few days, as the vessels constringe, it becomes less tinged, and the red colour gradually disappears, but the serous part continues to flow until the maternal part of the placenta (the decidua vera, with the chorion uniting its outer lamina) and the whole of the decidua are separated from the surface of the uterus, and totally cast off: during this process, the discharge is known to the nurses by the term of *green waters*. The lochial discharge generally subsides in about eight, ten, or twelve days; but may be re-produced in some habits, even so as to be tinged with red, from trifling causes, such as, endeavouring to walk too soon, or by only sitting upright; eating improper stimulating food, drinking any thing heating: and indeed any cause which increases the action of the heart and arteries, will renew the discharge, just in the same way as it is again brought on, in ulcers, wounds, &c. on the external parts of the body, through imprudence either in eating, drinking, fatigue, or from any exercise, before the part is firmly healed and has recovered its due texture. The more quiet the weakly patient is kept, in an horizontal position, with proper light food, &c. the sooner will the uterus recover its healthy tone and the discharge cease: but she may, if able, sit up from time to time, or in the attitude of half-sitting and lying; which will facilitate the discharge and prevent any obstruction in the vagina.

In strong habits, the lochial discharge is of shorter continuance than with those of a lax fibre; but when the quantity happens to be uncommonly profuse, and

continues so long as to weaken the constitution, it will be necessary to give tonics, such as bark, vitriolic acid, &c. If the quantity appear considerable, and the pulse be good, and unattended with any disagreeable symptom, it matters not; as the discharge will vary in different women according to constitution; and some weakly women will bear it with less inconvenience than others (apparently) of the same texture. Should there be a morbid obstruction of the lochia in the early stage, either from taking cold, too free use of opium, or from whatever cause, it may be attended with puerperal fever, or other alarming symptoms, unless proper means be early applied.

The uterus seldom contracts perfectly in less than eighteen or twenty days after delivery.

Other complaints liable to happen immediately from the effects of labour, are (as observed) a laceration of the perinæum, a distention of one of the labia pudendi, retention of urine, and a portion of the placenta being left behind: the latter has been known to prove as fatal, as when the whole placenta, from neglect, has been left in the uterus.

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#### *Sect. 5.—Laceration of the Perinæum.*

THE perinæum, which is situated between the vagina and rectum, is particularly described by the different Tables; and, when distended to its utmost extent about the conclusion of labour, if not carefully attended to, (as previously directed,) it is liable to laceration, little or much. When this happens to be but slight, it may require only some soft dressing to keep the lochial discharge from irritating, and will soon heal: but when the perinæum happens to be so much torn as to extend from the vagina quite through the coat of the rectum and its sphincter muscle, a re-union may be attended with much difficulty, if at all practicable, unless when early discovered: in that case, the sooner the lacerated parts are brought into contact, the better; which possibly may be done by applying a bandage round the thighs, and confining them close against each other: and in order to prevent the rectum from being disturbed by the evacuation of

fæces during a union of the parts (by the first intention), the bowels must be immediately emptied by some cathartic sufficiently brisk; the food to be of the liquid kind; and when stools are found necessary afterwards, clysters to soften and assist will be proper. When the bowels have been sufficiently emptied, any fæces remaining in and near the rectum must be cautiously removed by water and sponge, and the edges of the wound placed in such a manner as to be in close and even contact. In case of much inflammation, the common application of cataplasma and fomentation will be necessary.

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*Sect. 6.—Of Phlegmatia Dolens, or Distended Leg, of lying-in Women.*

THIS is a disease which sometimes appears soon after delivery; but seldom previous to the third day, or beyond the third week; usually about the latter period. It is not limited to any particular constitution; nor does the kind of labour, or manner of living, whether high or low; little or much lochial discharge, or secretion of milk; none of these things appear to have the least influence in producing this disease. It generally commences with pain about the groin, sometimes in the ham and hind-part of the leg. When the swelling commences in the groin, it rapidly extends all the way down, and the whole thigh and leg become distended to an enormous magnitude, equal almost to the size of the body; also the labium pudendi on the same side only is swelled.

Whatever may have been the original cause, the first symptoms, from the irritation produced on the swelled glands, are of the acute kind, attended with symptomatic fever; and as such, to be treated according to the peculiar state of the constitution; aperient, cooling, sudorific medicines will be useful, and small doses of opium, occasionally, to relieve pain; but bleeding and drastic purgings may in general be dispensed with. The limb has not the appearance of redness or external inflammation, but is hard and irregular to the touch, and cannot be moved without excruciating pain. The swelling is never in both legs at the same time, but both may be affected in succession. It probably is caused by local glandular obstruction, and rupture of one or more lymphatics. Anodine

fomentations and emollient applications will best suit at the beginning ; and, when the swelling begins to subside, which in general is in about eight, ten, or twelve days, re-absorption then taking place, which may be much assisted by gentle friction, and with camphorated volatile liniment, bandage, &c., some light cordial, as wine, may now occasionally be taken. Great weakness is apt to remain in the limb a considerable time ; and should the habit of body be debilitated, tonic medicines will be proper.

This disease is seldom or never fatal, and therefore no convenient opportunity has offered for examining the internal parts, so as to ascertain the real cause.

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## PART II.

*Description of the Uterus ; accompanied with engraved Delineations :  
With an account of the Accidents to which it is liable ; and its various  
Diseases.*

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### EXPLANATIONS OF PLATES, (A.) & (B.)

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#### A.

THE Plate (or Table) marked with the letter (A.) and the subsequent one marked (B.) without any number annexed, represent part of the UTERUS (body and cervix) expanded during the time of parturition at the termination of nine months ; and are to be applied over the Tables numbered, and having the letters (A) or (B) added, as observed in the general Directions accompanying the Tables.

Plate (A.) exhibits the UTERUS without blood-vessels, and is calculated to display the great distention of the cervix and os uteri in some directions of the child's head as it advances in the pelvis, so much, as for the uterus and vagina to appear almost as one entire canal. The os uteri, when not so greatly distended, projects into the vagina, as may be seen in the several cases.

The Uterus is divided into three parts :

- 1st. *Fundus*, or bottom ;—being uppermost.
- 2d. *Corpus*, or body ;—the middle part.
- 3d. *Cervix*, or neck ;—lowermost part.

## B.

THIS Plate represents part of the UTERUS (body and cervix) expanded as when containing the child, during the time of parturition, at the termination of the ninth month of pregnancy; the membranes preceding the head of the child (*vide TAB. XI. Fig. 1.*) having ruptured, the waters (*liquor amnii*) therein contained having been discharged, and part of the head (*vertex*), &c. having entered the os uteri and greatly distended it, as will be clearly perceived by placing this uterus (B) over TAB. I; which is also to be turned over every plate having the letter (B) annexed to its number, as mentioned in the general directions affixed to TAB. I. The veins nearest the surface of the uterus are presented to view as running and anastomosing in various directions; on some parts they are found taking a parallel course, and in contact with each other, but cannot be supposed to run exactly alike in every uterus, nor on all sides of the same uterus, any more than they do on the back of two hands, &c. These veins being copied from an injected uterus which appeared very distinct, will be sufficient to give a general idea of their ramifications. Some of them are so large as to admit of a quill, and even the end of a small finger at the full time of gestation; they are destitute of valves; whence the term uterine sinuses. They assume a more direct course than the arteries; (the latter are not here described;) but they are equally numerous with the veins, though much smaller, and their course vermicular (serpentine), so as readily to comply with the expansion of the uterus, running through its whole substance, and anastomosing with one another, particularly at the part to which the placenta is attached; and in this part the vascular structure is most conspicuous.

The arteries pass from the uterus through the decidua, and open into the substance of the placenta in an oblique direction. The veins also open into the placenta; and, by injecting these veins from the uterus with wax, the whole spongy, or maternal part of the placenta will be filled. The hypogastric artery supplies the mouth and neck of the uterus, and the upper part of the vagina, with blood; the spermatic artery supplies the fundus uteri and the ovaria; and the ramifications of the two arteries supply all the body of the uterus.

The gravid uterus is not of the same size in every woman; it must naturally vary, according to the bulk of the foetus, &c.; and as the contents increase, its situation and position will be more or less liable to change. For the first two, or

three months, the cavity of the uterus is somewhat triangular, as before impregnation, (*vide TAB. XIV. Fig. 5:*) but as the uterus expands, it gradually acquires a more circular form. The uterus seldom rises directly upwards, but is found to incline a little, and particularly to the right side; but its position is never so oblique as to prove any obstacle to delivery; for as labour advances, the os uteri (which sometimes is found pointing to one side of the vagina at its commencement) will be placed in its proper central direction.

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### GENERAL DESCRIPTION OF THE UTERUS.

THE Uterus is of a peculiar fabric: it is composed of innumerable blood-vessels, lymphatics, nerves, and muscles, connected by an intervening membrane, of a rather spongy contexture, rendering the whole elastic and accommodating, as it expands, without stretching. Its thickness, at the end of gestation, will in general be found a quarter of an inch: this is in some measure occasioned by the great influx of blood and lymph to its numerous vessels, and the enlargement of these vessels is most conspicuous about that part to which the placenta adheres.

The unimpregnated uterus is generally, with the cervix, about three inches in length, and pretty equally divided; but when pregnant nine or ten weeks, the cervix becomes somewhat shortened, the posterior and anterior parts of the uterus (which in the unimpregnated state are flattened) now distend; the whole becomes more circular. (*vide TAB. XIV. Fig. 5.*) As pregnancy advances, the uterus expands in every part; thereby the cervix becomes shorter. The longer the time of gestation, the more rapid is the increase of size, until a few weeks before parturition.

The human uterus, when unimpregnated, very much resembles a *pear* in its oblong shape; but it is somewhat flattened on the anterior and posterior sides: and in a few weeks after impregnation has taken place, the body and fundus become more equally distended; and as it increases in size, it assumes more of the oval.

In the unimpregnated state, the fundus is scarcely thicker than the cervix, and not easily to be discovered by the finger, forming a very obtuse angle, and the

projection, in this state, is chiefly from each side. A section from the posterior to the anterior part (pubes to sacrum) appears of the same thickness through its whole length, (*vide TAB. XVI. Fig. 1*;) but when it becomes impregnated, the fundus is soon enlarged and readily perceived by the finger stopping against it. By the shortening of the neck it may be computed how long the woman has been pregnant : (*vide TAB. XIV. Fig. 5*;) the obtuse angles of its fundus are clearly seen. This is about the size of the uterus in common : they bear a pretty correct proportion to each other, the one as unimpregnated, and the other at about ten or twelve weeks conception, spreading in circumference.

The uterus is supplied with two sets of muscular fibres ; one set, running in a longitudinal or perpendicular direction, the other circular and horizontal : they are supposed to possess powerful involuntary action in time of labour, causing pain, by forcing the membranes and the head of the child through the os uteri, vagina, and os externum ; and in some degree assisted and guided by the voluntary action of the abdominal muscles.

The cavity of the uterus, in the virgin-state, is little more capacious than the kernel of an almond ; but when impregnated, it gradually increases to that magnitude, containing a child weighing seven, eight, and even twelve pounds and upwards.

The uterus has three openings : one at the os uteri ; this is only large enough to admit a common probe ; the other two are so small that a hog's-bristle will scarcely find admittance. These, at the two extreme angles of its fundus, communicate with the Fallopian tubes ; (*vide TAB. XIV. Fig. 5*.)

When the uterus is not gravid, the os uteri is always open in those women who have borne a child or children, so as even to admit the top of a finger, when in a healthy state ; as previously noticed : but after conception, it is closed up with a viscid mucus, from small cavities, or glandular follicles, surrounding the inside of the neck of the uterus.

A portion of the anterior part of the body of the uterus, the whole of the fundus and posterior part, are covered by the peritonæum.

The anterior part of its neck and body not invested by the peritonæum, are closely connected by cellular substance with the vesica urinaria ; (*vide TAB. XIV. Fig. 5*.)

The uterus is slightly connected to the sides of the pelvis, and other adjacent parts, by ligaments and cellular substance.

The human subject is observed to be the only animated creature whose uterus is fleshy ; in all others it is completely membranous.

In a few instances, the uterus has been discovered double, having two cavities.

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## UTERINE ACCIDENTS.

THE Uterus is liable to be ruptured, in time of parturition, either spontaneously or accidentally : the first may be occasioned by an irregular action of its fibres, producing partial pressure on some part of the pelvis : this may so happen when not in the least suspected, and when it is not possible to be prevented ; and death immediately ensues, from the great and sudden discharge of blood into the cavity of the abdomen.

Accidental rupture of the uterus may be caused by the effort of turning the child in delivering. It is seldom a woman survives a ruptured uterus ; but when this accident happens, and the child passes through the lacerated part into the cavity of the abdomen, if the Accoucheur be present, he should introduce his hand through the ruptured aperture immediately before the uterus contracts, in order to extract and save the child : but if any space of time have elapsed before proper manual assistance can be procured, passing the hand forcibly through the lacerated part after the uterus has contracted, and dragging out the child, may possibly give the mother much pain, increase inflammation, and hasten her dissolution. A consultation, if immediately to be procured, where a young practitioner is first called, will ever be adviseable ; as, unless the child be extracted, he probably will be censured by the friends of the patient : for although the chance of life must, at any rate, be very small, yet there are instances related, where extra-uterine fœtuses have remained in the abdomen, surrounded and protected by membranous covering, for a number of years, so as to be attended with very little inconvenience, and such women have borne children afterwards in that state. Again, we have upon record instances where the child has become putrid, and the abdominal integuments of the woman (contiguous) have been destroyed by suppuration, so that the bones, &c. of the child have been extracted, the parts healed, and a perfect recovery has ensued.

Although the uterus is so essential for the preservation of the child during gestation ; yet, even were this organ entirely removed, the woman might still continue to exist : and experiments have been tried on brute animals, which have not appeared afterwards to be prejudiced in health. Dr. Turner, in his second volume of Surgery, notices a case of a prolapsed uterus being cut out by the woman herself (when insane) with a razor ; and that she had every prospect of a speedy recovery from the operation.

Although nature, in general, may have its uninterrupted course, every stage of gestation advances regularly, and terminates favourably : yet, from the sudden impulse of surprise, fear, &c. during that term, the uterus, like other parts of the body, is liable to sympathetic participation in whatever may influence the mind, and to experience such violent spasms as actually to rupture the membranes within ; thereby producing premature labour. Abortion likewise takes place even while the membranes remain entire : but when they happen to be broken, so that the liquor amnii is discharged, abortion generally follows quickly after.

However, there are some few instances related as exceptions to this last ; one of which happened under my care : this being accompanied with some particular symptoms, I shall take the opportunity of giving it a place in this book. It was inserted in the Medical and Physical Journal, vol. viii. ; September 1, 1802, No. 48 : which, however, may not have fallen into the hands of every one.

Dr. Pentland relates a very distinct case, where the liquor amnii was, in the third or fourth month, discharged in a fit of coughing. The belly fell ; but the woman went on to the full time, and had a good labour. Dublin Medical and Physical Essays, No. 1, art. 3.

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## DISEASES OF THE UTERUS.

THE Uterus is liable to diseases peculiar to muscular bodies ; such as INFLAMMATION, ABSCESS, ULCER, TUBERCLES, SCROFULA, SCIRRHOSITY, CANCER, POLYPUS ; STEATOMATOUS, ARTEROMATOUS, or SARCOMATOUS TUMOURS of various size, EARTHY CONCRETIONS, HYDATIDS, FLATULENCE, and DROPSY.

Those termed scirrhus and of the polypous kind, being most frequently met with, will be more particularly treated of.

It cannot be supposed that the many diseases to which the uterus is subject, are readily distinguished at their commencement; the symptoms in general being produced from uterine irritation, and are various, but ought ever to be early attended to.

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### SCIRRUS.

THE SCIRRHOUS TUMOUR is seldom formed, at its commencement, in any other part but the cervix uteri, this part being of a texture most glandulous, (yet liable to attack any other); but when it begins to ulcerate, its extent has no bounds. A small tumour may have taken place many years before it is discovered to be attended with any inconvenience; and the patient complains of lancinating pains, great heat, or considerable uneasiness about the uterus, (even when in the prime of life,) more particularly so near the cessation of the menses, (a time when disease of some kind too frequently takes place, but more commonly in the plethoric inflammatory habit, when scirrhus tumours are ever to be suspected, which are prone to infest such parts, and to become carcinomatous, if not early prevented.)

In order to ascertain the state of the *os uteri*, &c. it will be absolutely necessary to examine *per vaginam*, whether any kind of tumour is to be discovered; and if the *os uteri* be found tender, uneven, thickened, or rigid, disease of some kind in the uterus, or in its cervix, is too evident. Tumours in general, as they increase in size, distending and pressing on the neighbouring parts, are liable to produce inflammation in parts already disposed to inflame; which inflammation may possibly be no small cause of hastening the morbid state of the tumour, and rendering it more susceptible of carcinomatous disease.

Antiphlogistic means are to be resorted to, such as bleeding near the part affected, as early as possible, by applying a considerable number of leeches to the groins, repeatedly; or by cupping on or about the loins, and, in very full habits, so as to draw off a considerable quantity of blood even in a few hours, and to be repeated; frequent purging with neutral salts, an horizontal position, the warm

bath, living on vegetables, gruel, teas, &c., and weak broths occasionally may be required by some constitutions ; avoiding solid animal food, spirits, wines, and all fermented liquors.

The great object is to allay irritation, subdue inflammation, and, by reducing the habit to a certain pitch or standard, as may be judged prudent, the absorption must be the greater, and thereby the pending mischief be starved or dispersed in its embryo. All this should be attempted before a tumour becomes a virulent carcinomatous scirrhus.

There is a more peculiar exciting cause, or idiosyncracy, discoverable in some constitutions prone to morbid action, either in the general habit or locally in some one particular part, than in others ; even in some very weakly but irritable constitutions ; and more so at one time than at another.

Proper evacuations early attended to, living exceedingly low, with rigid perseverance for a sufficient length of time, will prevent a scirrhus from becoming a cancer. But the great misfortune is, so few can be persuaded to follow up this necessary plan for a due length of time : when the symptoms are abated, when ease is procured, the patient is too apt to think herself well ; and, by her change of diet, &c. a relapse in general is the consequence.

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## C A N C E R.

WHEN the patient's situation in life is such, as unavoidably to require her attention to domestic concerns ; or where, moving in a higher sphere, she may not be willing to comply with the means proper to prevent ulcerated CANCER ; under such circumstances, palliatives alone can be resorted to, as no cure, in a real carcinomatous ulcer of the uterus, has ever been effected. If there be such means in existence, they never were applied properly, or for a due length of time, to surmount this destructive malady.

In constitutions which, from long disease, have become reduced and emaciated, good proper nutriment, with cordials, will be necessary for the support of nature.

When carcinomatous scirrhus attacks the breast, instances have occurred of its

having been successfully removed by the knife or caustic, if early applied. Where the disease has not been suffered to become too formidable prior to the operation, (meaning) before the white, filamentous, and ramifying branches shoot out and expand from the body of the scirrhus: these are known to penetrate, and contaminate all surrounding parts with which they come in contact, in such a manner as not to be eradicated without removing the whole breast. — This proves how necessary is an early extirpation of a tumour, that will not yield to medicine, either internally or externally applied.

The uterus is sometimes thickened, enlarged, and weighty; hence arises great uneasiness in that part, though possibly not amounting to real pain. This is a proof of too great an influx of blood, &c. producing obstructions; and generally happens after the menses have ceased to flow. This may proceed from a scrofulous habit; but in this case the antiphlogistic medicine will be proper at first, to subdue the temporary inflammation and fulness; an horizontal position too should be observed; after which, other means of the alterative plan, sea-bathing, and tonics, will generally be sufficient.

When a really carcinomatous scirrhus in the uterus becomes ulcerated, every means should be used to palliate the symptoms, and to keep the parts clean with proper injections; and emollient ointments should then be externally applied to the surrounding parts, to prevent excoriation.

The beginning of cancerous ulcer in the uterus is generally attended with a thin acrimonious discharge; at this time the only injection necessary is that of simple water which has boiled, and been left in an earthen pan to precipitate. The water being thus divested of any irritable particles, will the better serve to wash off the discharge, and, by mixing with it, render it less excoriating; &c. But when the disease has arrived to such a state, as that the discharge is sanguineous and exceedingly offensive, other injections will be requisite; such as a mild decoction of chamomile flowers, or an infusion of cinchona or conium (cicuta); a weak solution of gum. myrrhæ in a mild decoction of capsul. papav. somnif. ; or a few drops of the liquor plumbi acetatis with water; and in some cases, a moderate solution of ferri sulphas in water, by way of astringent, will be necessary, to check the bleeding. In the ulcerated stage there is a constant and ardent pain: an horizontal position will diminish the symptoms, as well as the warm bath, and opiates by way of clysters, to mitigate pain and procure rest, without disconcerting the stomach, &c.; yet, in some instances, it has been found necessary to take

opium by the mouth also, in case of excessive pain. Also a solution of opium in water may be conveyed into the uterus, if possible, by means of a syringe.

It is essential to remark, that, however beneficial injections may be, when judiciously applied ; they may, notwithstanding, in improper hands, do much hurt. Injections should be conveyed into the womb, if possible, by means of a syringe properly shaped, and cautiously introduced ; no force, but gentle means must be used. If the syringe cannot be guided into the uterus without causing much uneasiness, it will be better to inject the vagina only, in order to cleanse it from the acrid matter.

Young people are not so susceptible of cancerous complaints, but are more liable to affections of the lymphatic glands ; a disease known as scrofula ; which in general, with proper management, is cureable.

The primary diagnostic between *cancer* and *scrofula* is, that the cancer chiefly originates in those glands intended for secreting fluids necessary for the different functions of the body ; (but not in those known as merely lymphatic glands,) being chiefly confined to some particular part ; but scrofula in common originates from a generally indisposed and lax habit of body. Yet every gland and all soft parts are susceptible of carcinomatous ravages.

When a tumour happens in the breast of very young people, not having been early attended to, so as to have been dispersed by internal medicine or external applications, by extracting the heat, removing obstructions by means of leeches, &c. they sometimes become formidable ; and even so troublesome as to require extirpating ; but after this operation, the part soon heals, and is very seldom, if ever, known to be of the nature termed *virulent carcinoma*. The habit will generally be found of the scrofulous kind ; and after an operation, medicines to correct that tendency will be necessary. Also, in case of a scirrhouus tumour having been extirpated from a person at any time of life, alterative and tonic medicines, to correct the predisposing cause of such complaints, will ever be adviseable ; for whether they proceed from local affection only (which cannot always be ascertained), or from a constitutional morbid action, medicines proper to correct the general habit can never do hurt.

## LUPUS, AND NOLI ME TANGERE.

THERE are frequently seen *diseases*, which, when ulcerated, very much resemble the real *cancer*; and to which both men and women are equally liable; known as *Lupus*, and *Noli me Tangere*; but in fact they are one and the same, and their origin is chiefly cutaneous. When any part of the face is thus attacked, (which does not in its beginning appear exactly alike in every person,) it is known by the appellation of *Noli me tangere*; being more immediately exposed to irritation from the fingers, &c. ; (whence the name.) When it appears on any other part of the body, it is termed *lupus*; and if suffered to become ulcerated in the face or elsewhere, it is termed a *lupus* sore, and frequently mistaken for a virulent carcinomatous ulcer; and has been known to terminate alike fatally. In some persons it has somewhat the appearance of a wart (at the commencement); in others, it is attended with slight redness, covered with a brown scurf; which may disappear spontaneously, or from the use of neutral salts, sea-bathing, &c. ; but still is apt to return (about the same spot) at some particular season of the year; and this may be the case for many years, before an ulcer is formed.

If, in the early stage, before ulceration takes place, it is situated conveniently for extirpation either by knife or caustic, much trouble will be prevented; but if palliatives only be resorted to, such ought to be of a mild soothing nature, as every stimulating application will increase the malady. A due proportion of liquor plumbi acetatis, hydrargyri submurias, tinctura opii, properly blended with unguentum (ceratum) cetaceum, made into an ointment, and applied to the part before ulceration takes place, I have known of much use: more particularly so, if some mild mercurials are administered internally, with the sarsaparilla decoction, together with abstemious living, avoiding animal food and fermented liquors.

In case of ulceration, the same internal medicines will be the more necessary, with great caution as to diet, &c. ; but all applications of a greasy nature will be prejudicial to the ulcerated part, the ointment must therefore be omitted, and in its stead pure water may be mixed with the other articles, and applied by way of lotion. Yet I have seen the same ointment answer, when mixed with a sufficient quantity of the yolk of an egg, so as to destroy the greasy part.

It is well known, that mercurials, used either internally or externally, in real cancerous ulcers, will aggravate the symptoms.

And it may not be improper to observe, that the venereal disease (*syphilis*) is known to destroy bone, and particularly that of the nose ; but the disease known as *lupus* will not affect such parts, yet is equally destructive to cartilaginous and all soft parts of the body.—This remark may be of use, in long standing obstinate disease, to determine which of the two it is.

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### FALSE CONCEPTION, POLYPI, MOLES, &c.

CONCEPTION is the consequence of sexual intercourse ; and that termed *false* is where the foetus dies after the woman has somewhat advanced in pregnancy, and is discharged out of the uterus together with its appendages, placenta, &c. In this confused mass (as it may at first appear), when washed in water, and carefully examined, the rudiments of a child, &c. will be very evidently traced, however withered and blighted.

FALSE CONCEPTIONS, POLYPI, and MOLES, proceed from very different causes ; they were formerly looked on as one and the same ; but experience has taught, that a polypus of the uterus proceeds immediately from the uterus, to which it is attached, and by which it is supplied with juices, and nourished ; it is generally connected to the internal part of the uterus by a pedicle, at the extremity of which a substance of considerable magnitude is frequently formed : this sometimes extends even through the os uteri into the vagina ; and when it happens to be so situated as that a thread or ligature may be passed round the pedicle, the extirpation is easily accomplished, if not very large.

The term *polypus* is still preserved, although it has little or no affinity to the animal so called. Polypus is known as a fleshy kind of substance, void of nerves, and connected to some one part, by which it is nourished (by means of the pedicle), but to which it does not naturally belong : it is sometimes discoverable in other cavities of the body besides the uterus and vagina ; such as the heart, nose, ears, urethra, and rectum ; but not so frequently. If, by introducing a finger into the uterus, it can be passed round the tumour, there will be little doubt

of its being such : it is not uncommon at the same time for the os uteri to be tender and somewhat thickened, and even to partake of scirrhus.

There are three ways by which the cure may be effected; either by the natural expulsive efforts of the uterus; by ligature; or by the knife : this last is not so adviseable as the ligature.

Polypus is sometimes attached to the fundus, or any other part of the uterus, even to the cervix. When its origin is from the fundus, hanging down through the os uteri into the vagina, so as at first to be mistaken for prolapsus uteri, much caution ought to be observed ; but this will be distinguished by tracing round the inside of the cervix uteri with a finger or probe. In this state, if ascertained to be polypus, and it being judged prudent to extirpate it by ligature, great care will be necessary not to include any part of the cervix uteri ; which mistake, it appears, has happened. If the pedicle do not extend down through the os uteri, a ligature may sometimes be passed round it, by means of an instrument contrived for the purpose, and, by tightening the ligature every day, the tumour will drop off : but should this operation be attended with considerable pain from the parts being in an inflamed state, it will be proper to desist, until, by blood-letting and cooling medicines, such symptoms be removed.

When a polypus is of considerable size, and situated in the uterus, so that it cannot possibly be removed either by knife or ligature, it generally proves fatal : being disposed to bleed, reducing and weakening the constitution, the congealed retained blood becomes very offensive, and the patient dies dropsical. When such disease is seated in the vagina, it is then more manageable.

*Moles*, originating from a coagulum of blood, or other accidental cause, by an absorbent attractive power, accumulate, in some instances, to a magnitude very considerable : such are recorded to have remained for years without any increase of size, and then expelled with safety : but if suffered to continue too long without manual assistance for its expulsion, may prove fatal.

A mole not being attached to the uterus, is discovered by its weight and motion in the womb, pressing on one part or the other as the body inclines ; and unattended with the many sensations of early pregnancy, and not like those occasioned by the motion of a child, which is liable to be felt in different parts of the womb, sitting, or lying perfectly still. A mole being an extraneous substance, the symptoms it produces are very distinct from those known by the term *false conception*,

and may happen to women who never had intercourse with man: therefore the young practitioner ought to be very cautious in his enquiries, and in giving his opinion. The external part of the abdomen, in case of mole, feels hard like a solid mass, resists the pressure of the hand, and is not pliable as when distended by the liquor amnii.

Whatever substance is conveyed to, or accumulated in the uterus, expanding little or much, shaping itself to the uterus, will sooner or later produce symptoms like those of a miscarriage or labour; and if unconnected, will generally, by the action of the uterus, be easily expelled.

In diseased ovaria, extraneous substances are often discovered, such as bones, hair, teeth, &c.

The various tumours to which every part of the body is liable, may proceed from very different origins; the nucleus of some, even in the uterus, are known to be of calcareous concretion, (and even in so remote a part as the mouth, imbedded under the tongue). With any tumour, from whatever cause, distending the uterus, producing irritation, the breasts (and stomach) are liable to sympathize, and to become somewhat enlarged in the early part; but soon subside.

In case of pregnancy, about the third or fourth month, the breasts enlarge, (more or less, in different women,) and continue somewhat firm during the full time of gestation, until milk is secreted, when the increase of size is much more considerable.

All parts of the body are liable to tumours of various kinds; and when they are situated in parts surrounded with cellular membrane, the latter being compressed forms a cyst, which in time, from the extension and pressure caused by the tumour, becomes compact, dense, or tough, according to circumstances.

It has been observed by anatomists, that when any vessel has by accident been ruptured internally, and the blood not re-absorbed entirely, a small remainder of coagulum may cause irritation on the parts in which it is confined, producing inflammation sufficient to excite small ramifications of vessels and to penetrate such coagulum; thereby giving the tumour animation and nourishment; which may become formidable and dangerous, if not early removed. When tumours are situated in adipose parts, the ill effects may not be so great.

Encysted tumour, originating from some small particle, increases in size by an attractive secreting quality peculiar to the cyst, accumulating a fluid gradually,

until it often arrives to a considerable magnitude ; but whether the cyst be originally formed, and distended from some accidental morbid cause, or by some kind of animalcules, is not of considerable moment.

Encysted tumours take their names according to the consistence and quality which they contain ; from the hydatid filled with clear limpid water, to that inspissated like cream, honey, suet, &c. even to the substance of horn ; which last, when it is seated near and penetrates the skin, being supplied and nourished by the same kind of secretion whence it originates, (which must be somewhat similar to that supplying the nails,) keeps growing and projecting, in manner of a horn, from the surface of the body. The contents of encysted tumours not being accompanied with vessels or nerves, are consequently void of sensation ; but the surrounding parts on which such tumours press, causing distention, will be liable to much pain, and the irritation is sometimes such as to produce inflammation and suppuration.

HYDATIDS of various sizes, containing limpid water, will often be found in the abdomen and other cavities of the body : when they are situated in the bladder, they have been voided with the urine ; at other times, when originating in the lungs, they have been thence discharged by expectoration ; and have even been discovered on the pia mater, after a contusion of the head. In the uterus, where there is room for them to expand, they have been known to cause such an enlargement as to give the appearance of advanced pregnancy ; and then bursting spontaneously, the patient has been immediately freed from uneasiness and inconvenience. But when it happens that two or three large hydatids are formed in the uterus at the same time, one may rupture before the other, and prolong the complaint, unless manual assistance be resorted to : when once the cause is known, the sooner they are ruptured the better.

This disease, by some, is termed a dropsy of the uterus. Water has also been known to accumulate in the uterus, distinct from any hydatid, being obstructed and retained by some adhesion, or other disease of the neck of the uterus. This proves how necessary examination *per vaginam* is, in most complaints of such parts.

It is not uncommon for the uterus to be distended with a cluster of diminutive hydatids, growing in vast abundance on fibrous branches, like a bunch of grapes, and containing a kind of fluid, attached to the uterus by a pedicle, spreading and adhering to the circumference, of the size of a crown-piece, more or less ; by which

means the whole is supplied with juices and nourished about nine months, and sometimes more, when the uterus is deficient of expulsive efforts: but such are often discharged in the early months, somewhat after the manner of a miscarriage. When there are pains like those of labour, attended with flooding, it will be prudent to introduce the hand into the uterus, and extract carefully the contents, by slowly separating the pedicle from the uterus; its extraction will be attended with little trouble, compared to that of a fœtus.

The INFLEXION or DUPLICATURE of the PERITONÆUM, in and about the pelvis, proves accommodating to the uterus, in the different stages of gestation; but at the early part, may sometimes be attended with much inconvenience, through accident, or neglect; such as the retroversion of the uterus; the fundus uteri turning backwards and downwards between the vagina and rectum into this inflexion: also with the hydrocele, or dropsy of the perinæum; and with that kind of hernia termed *hernia vaginalis*, or perinæal hernia, occasioned by the descent of the intestines between the vagina and rectum, which by some particular exertion may be forced down, and elongate the peritonæum, separating the cellular membrane which unites the vagina to the rectum. The intestines, or omentum, so driven down by pressure, may inflame, and become obstructed by accidental stricture; hence ensue pain, vomiting, &c. common to strangulated hernias; and, if not quickly returned by such well-judged means as may occur to the surgeon, death must ensue. But although this kind of hernia seldom happens to an alarming degree; it will be right, when symptoms attending strangulated hernia appear, and do not readily yield to medicines usually administered in such cases, where pain has occurred in any particular part of the bowels, or abdomen, attended with constipation, retchings, &c. to examine all such external parts early (and at all times, both in men and women) when attended with symptoms liable to intestinal hernia. It is most common for the intestines to be lodged in those inflexions of the peritonæum, when the uterus is not distended with pregnancy: these folds (as observed) allow the uterus to rise up, and expand; and then it is not so likely for the intestines, &c. to be forced down.

## RETROVERSION OF THE UTERUS.

RETROVERSION of the uterus was very correctly explained in England by Dr. Hunter, in 1754; but it had been previously described by Levet and Gregoire. It is most likely to happen where the pelvis is very large: it is generally occasioned by the bladder being suffered to distend by too long a retention of its water. This chiefly takes place towards the end of the third or beginning of the fourth month of gestation; the bladder being so distended, rises into the cavity of the abdomen, and drags with it the os uteri above the symphysis pubis, part of the cervix uteri being connected to the lower part of the bladder by cellular membrane, (as marked in TAB. XIV. Fig. 5): by this means, and owing to the weight of the bladder (from the quantity of water), the uterus is thrown backwards into the hollow of the sacrum, in the duplicature of the peritonæum: in this situation of the uterus, the water is prevented from passing off; which causes great uneasiness, and is sometimes attended with intermitting, spasmodic, forcing pains, very like those during the time of labour.

The first object, after finding the bladder distended, (and no urine having been passed for some time,) is to draw it off by means of the catheter, as a temporary relief; and this must be repeated at least twice a day, until the uterus gradually increases in bulk; which will cause it to rise (or mount) out of the pelvis: this will generally be accomplished about the end of the fourth month of pregnancy, so that, by drawing off the water twice a day, for about three weeks, all will be right. But should the patient, unfortunately, be situated at so great a distance as not to be able to have the ready assistance of the surgeon, and the attendant woman incapable of being instructed in the mode of introducing the catheter, there can be but little chance of her living; inflammation and mortification of the bladder must soon follow, and the water will make its way through it into the abdomen.

But, with a view to prevent such serious mischief, it will be adviseable for the surgeon to attempt the turning of the uterus into its proper situation; and the mode most likely to answer is thus. — After a glister has been administered to empty the rectum, the water drawn off, and six or eight ounces of blood taken from the arm (if found necessary); the patient being placed on her hands and knees, two fingers of one hand are to be passed into the vagina, and a finger of

the other into the rectum, to endeavour to raise the fundus uteri (there lodged) upwards and forwards above the projection (or great angle) of the sacrum, and there may be a possibility of succeeding; but if too great force be applied, so as to produce much pain, abortion will probably be the consequence: therefore great caution is to be observed. When replaced, the patient should recline on her face, or side, as much as possible; and when passing urine, she should be on her hands and knees, to prevent its return: if the urine be discharged whenever there is the least inclination (so as to keep the bladder empty), all will go on well. A glister may be necessary to assist in the discharge of fæces lodged by the compression of the rectum.

It will be proper to observe, that, when the bladder is thrown back, whereby the urethra is stretched to a considerable extent and presses on the os pubis, if the common catheter with a circular tube cannot easily be introduced, one which is somewhat flattened may: (make use of no force:) but the male flexible catheter (which every surgeon should have) in general will, under such circumstances, answer best; this must be very cautiously introduced. The first time of passing the catheter is generally attended with most difficulty.

The longer the retroversion has continued, the more easily will the uterus be replaced, because it continues daily rising in the pelvis, and keeps increasing in size, until, in a few weeks, it must right of itself, if the water be regularly drawn off; and sometimes, on a sudden, much earlier.

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### RETROFLECTION OF THE UTERUS.

THE complaint called *retroflexion* of the uterus, by some, is similar to the retroversion. This sometimes happens after delivery, before the uterus has properly contracted; the fundus being turned downwards and backwards between the rectum and vagina, by the curvature of the uterus in its middle, whilst the os uteri continues in its natural situation. Should there be a suppression of urine, which is generally the cause, the catheter must be introduced; and after the water has been discharged, the fundus of the uterus is to be raised above the projecting part of the sacrum, as recommended in the retroversion.

INVERSION of the uterus has happened by unskilful treatment in labour ; but if discovered soon after, it may be returned, and, by the patient's continuing in an horizontal position for some time, the parts may recover their proper situation.

PROCIDENTIA or PROLAPSUS of the uterus is oftentimes a distressing complaint; but it is, more properly, a change of position of the uterus, than a disease : and it will sometimes protrude out of the body. The most common relief is from the use of pessaries, after the uterus has been replaced. Should this descent have happened at the time of labour, (or at any other time,) and attended with inflammation and tumefaction ; bleeding, fomentations, with laxative cooling medicines, together with a recumbent position, previously to its being replaced, will be necessary. When the prolapsus is occasioned by a labour, it may be perfectly cured (with great caution in supporting the uterus during the next labour) by continuing the horizontal position for many weeks after. If the prolapsus proceed from a debilitated habit of body, the uterus, its ligaments, and all the parts to which it is connected, being relaxed, (after it has been replaced,) some mild astringent injections may be applied with benefit ; and at the same time the use of tonics, and the horizontal position, must not be neglected. In some instances, sea-bathing has been found beneficial.

In most complaints of the uterus and of the vagina, it will be judicious (before any thing is administered) to examine the parts ; as there cannot be always a certainty of the particulars, from the description of the patient, or her attendant ; the complaints in those parts are numerous, and similar symptoms are apt to proceed from very different causes.

TYMPANITIS UTERI. The uterus is recorded to be sometimes distended with wind to a considerable size, with the symptoms and appearance of pregnancy ; which getting vent spontaneously, the uterus will contract to its usual size. Such a complaint may possibly proceed from weakness, and from obstructions in the cervix uteri.

## V A G I N A.

THE VAGINA is that cavity, or canal, uniting to the cervix uteri ; and extends down to the os externum, as represented (TAB. XIV. *Fig. 1.*) in its natural state, and in most of the other plates : the upper part is widest, and the shape is somewhat curved, answering to the cavity or axis of the pelvis. It is composed of three coats : the outer coat is formed of cellular membrane, with which it is connected to the neck of the bladder, and to the urethra throughout, and behind with the intestinum rectum. The second or middle coat is composed of muscular fibres and capillary blood-vessels. The third or innermost coat is a continuation of the cutis from the inner surface of the labia : it is exceedingly villous, containing innumerable excretory ducts. Its appearance is uneven, with transverse folds (*rugæ*) chiefly on the anterior and posterior sides, which somewhat increase the sensation during coition ; but these disappear, after a woman has borne many children. The villous inner coat of the vagina is continued over the os uteri, and lines the cavity of the uterus.

The vagina extends above the os uteri ; it is then reflected downwards, unites to the cervix, and is continued throughout over the os uteri, which enters (dips) into the vagina ; (*vide TAB. XIV. Fig. 4.*) In the unimpregnated state, the os uteri is seldom more than two inches from the os externum. In a less degree, the os uteri projects into the vagina during parturition, excepting when the cervix is, in some situations of the head of the child, stretched to its utmost extent, (as in TAB. V. VI. IX. X.) This will be particularly observed, (TAB. XV. *Fig. 4.* marked X. X.)

The *os externum* (entrance of the vagina) is supplied with muscular fibres from the pubes and sphincter ani, passing on each side of the pudendum, which partially answers the purpose of a sphincter, although not a complete one ; yet it has considerable action, but not so great as the sphincter ani ; its contractile fibres being chiefly on the posterior part. In all ages, it is narrower than the canal itself, but particularly so in infancy.

The vagina is capable of being distended, during labour, by the mechanical force of the head of the child, to a vast extent ; but it has not of itself any power of action in assisting the expulsion of the child.

The vagina is liable to inflammation, ulceration, contraction, cohesion of its sides, excrescences, fluor albus (*leucorrhœa*), &c. which are to be relieved by proper medicines, application, injections, &c. When the inflammation is abated, and contraction of the parts continues, some soft substance of an elastic nature should be introduced to keep the sides from collapsing and adhering. It may be requisite, where there have been adhesions of any continuance, to separate them by means of a bistoury, (or knife) The inner coat of the vagina is liable to a prolapsus ; and if not relieved and supported in time, with a proper kind of pessary and bandage, will become equal to an inversion ; lie in folds, much thickened, protrude the os externum, inflame, and even slough away. An horizontal position, with proper applications, may give relief.

The bladder is liable to great distention from urine, inflammation, ulceration, and mortification.

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## PART III.

### REFERENCES TO THE TABLES.

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#### CLASS I.

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#### T A B L E I. (B.)

REPRESENTS the left side of a section of the PELVIS, with part of the UTERUS in view, corpus and cervix ; (the fundus being covered by linen;) containing a child under delivery, the membranes having ruptured, and the head so much depressed by the labour-pains, that the basis of the cranium is about even with the rim of the pelvis, having descended into the upper chamber, with the left ear turned a little upwards from the symphysis pubis somewhat diagonally towards the right groin, the right ear consequently towards the juncture of the sacrum and ilium on the left side of the pelvis ; the lesser or posterior fontanelle may be felt behind the branch of the ischium towards the left groin, and the large or anterior fontanelle inclined towards the os sacrum on the right side ; this being generally the direction of the head when thus far advanced, with the face to the right side of the pelvis. In this stage of labour, under urgent circumstances, it is sometimes necessary to apply either the forceps, or vectis, to assist the delivery of the child's head.

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## FORCEPS CASES.

ALTHOUGH the use of the forceps and vectis is demonstrated to students attending lectures on Midwifery, it may be necessary for me to describe the most judicious manner of applying them to the sides of the head, as here represented ; as, probably, the young Accoucheur, from disuse, may not perfectly recollect how to use them.

When the head is thus situated, and is uncommonly large, or the pelvis narrow, and possibly somewhat distorted ; the patient too being weakened by previous illness, or from long and tedious pains, which have ceased through fatigue, flooding, fainting, convulsions, &c. ; the head becomes stationary ; (the particular parts of this view are described by references to the outlines, TAB. XV. *Fig. 4:*) any attempt either to push it back, or to turn the child, and deliver by the feet, does not appear adviseable in the patient's exhausted state, but might prove fatal to her. Under such circumstances, it will be necessary to make use of the forceps, to extract the head : previous to which, should the bladder be distended with urine, or the rectum obstructed by hard faeces, such parts ought to be emptied with the catheter, and by clyster. The feel of the ear towards the pubes (the other ear being out of the reach of the finger) will discover which way the face lies, whether to the right or left side of the pelvis ; the ala, or projecting cartilaginous edge of the ear, being towards the back part of the head, and the smooth part next the face : but on whichever side of the pelvis the face lies, the patient should be placed on her left side.

When the face is to the right side of the pelvis, as in this plate, the forceps must be applied over the ears in the following manner.

The patient being placed close to the edge of the bed, the blades of the forceps having been rubbed with (unperfumed) unguent, or lard, to facilitate their introduction, and being laid conveniently for the operator ; he then takes the first blade in his left hand ; and, after having introduced one or two fingers of the right hand up between the symphysis pubis and the head of the child, in order to direct the blade over the ear, between the uterus and the head, he must remember to keep the handle in his left hand backwards close up against the perinæum in a parallel direction with the child's head and the axis of the pelvis, otherwise the blade will

not pass up between the uterus and the head, but may either be pushed against the head, or behind the projecting part of the os uteri. When the blade is properly guided with the fingers of the right hand, and the handle gently pressed with the fingers of the left, it will generally be found sufficient; but should the blade meet with resistance, or the patient feel pain, withdraw it a little, and humour it, by moving the handle gently in a short lateral direction; and when introduced so that the upper part of it reaches the os externum, press the handle gently downwards to make way for the other blade, (but observing to keep it steady). This other blade is to be passed up in the same manner with the right hand, and to be placed directly opposite and parallel to the first; guided by one finger of the left hand previously introduced; which being withdrawn, press the end of the fingers against the handle, and, if properly applied, it will readily slip up between the head of the child and the uterus. When the blades are correctly introduced, they will easily lock: but should the handles lie flat against each other, the head cannot be included in the forceps; and if the blades be at too great a distance from each other, they cannot be placed over the ears, and will be liable to slip, when extracting; (but some allowance should be made for different sizes of heads:) thus circumstanced, one or both blades must be withdrawn, and applied afresh. Great caution should be observed not to inclose any part about the os externum (hair, &c.) in the lock of the forceps. When properly applied, a piece of tape or fillet of some kind may be passed over the handles, to secure and keep them steady. Whilst all this is doing, the Accoucheur must not forget to keep the handles close up against the perinæum, and particularly so at the time of beginning to extract.

The forceps should be so placed as to point in a direct line between the navel and scrobiculus cordis, as they are represented; for, unless they are so, they cannot be in the axis of the pelvis; the forceps must slip, and the operator be foiled: it will also be right to observe which way the body of the woman is most inclined, whether towards her face or back; in order to keep the forceps in a proper direction with the pelvis; and previous to beginning to extract, a finger should be passed round the head as far as it can reach, to feel whether the forceps be properly placed; and this may be repeated during the intervals of resting.

In this plate the perinæum is represented as being pressed back against the rectum and anus by the handles of the forceps, in order to keep them parallel, in a direct line with the head of the child.

Should there be pains, though ever so slight ; wait the opportunity (if circumstances will admit), and extract when a pain is on ; at the same time gently moving the forceps from handle to handle, (which motion causes them in some degree to act alternately as two distinct levers) : when the pain ceases, rest ; and loosen the hands (a little) to take off the pressure on the head until another pain ; and then repeat the same alternate retrograde traction from handle to handle. If the patient be in tolerable strength, the pains generally increase with but little assistance of the forceps : in so doing, the forceps should be kept rather loose in hand, as the pains may cause the head to advance and turn whilst the forceps is on, without any endeavours of the operator. But, should there be no effectual pains, the operator must, at the time of extracting, endeavour to pass the face of the child into the hollow of the sacrum ; which must be done by turning the handles of the forceps upwards from the right hand towards the left ; which possibly may require some exertion ; and when so placed in the cavity of the sacrum, the right blade will be uppermost against the right side of the pelvis, and the left consequently undermost. When the face is properly and sufficiently turned into the hollow of the sacrum, the head will then be as seen in TAB. II. Should there not be any natural pains whilst extracting and turning the head, it will be necessary to rest at intervals, so as to imitate nature, and relieve the head from the pressure of the forceps, from time to time, (if circumstances admit;)—but not to hurry and fatigue the patient more than is absolutely necessary. Should the patient have expired previously to the Accoucheur's arrival ; it will be judicious, in order to preserve the life of the child, (if too great a length of time have not elapsed), either to turn the child and deliver by the feet ; or to apply the forceps, as above, and deliver as speedily as may be done with safety to the child.

Few practitioners are ignorant that the *manner* of applying the forceps requires less skill than knowing *when* to apply them. If the child cannot be delivered by the pains alone, the pelvis being narrow, or somewhat distorted, (as seen in TAB. XVII. *Fig. 3. and 4.*), the strength of the patient tolerably good, and no alarming symptoms ; the longer the application of the forceps is delayed, the less difficulty will be found : for, although the pains are but small, and the head (apparently) making but little or no advance, still the soft parts continue to relax, while the head at the same time collapses. In this state, rest, by the aid of opium, will be of great use. When the head has been resting on the perinæum for four, five, or six hours, even without pains, and no signs to indicate any farther advance

nor symptoms to require speedy delivery, it may be prudent to wait till that time, and even longer, before the forceps should be applied: with rest, light proper nourishment, and a little longer time, the pains may return and be sufficient to expel the child without instruments.

NATURAL LABOUR must be attended with pain, in a greater or less degree, in its efforts to expel the child: instruments also, when used to extract the head, will generally excite pain; and when any exertion is required in giving the necessary turn to the head (from its size), in order to pass the face into the hollow of the sacrum, &c. the pain thereby excited may sometimes be rather considerable: in such cases, frequent resting will be necessary, as no force ought to be applied, so as in the least to injure either mother or child; gradual and cautious means will always succeed best.

Persons not long in practice, may be deceived by the touch *per vaginam*, and not be able to ascertain thereby whether the head be sufficiently low in the pelvis for the application of the forceps. The observation should not be taken from the feel of the head at the os pubis only, as the pelvis is not more than two inches in depth at that part, and is readily perceived by the finger: therefore the head may be suspected to be lower down than it really is: but in examining backwards, little or no part of the head being found towards the sacrum, it is then certain that the whole of the head is above the rim of the pelvis. If it be as far down as the lower part of the sacrum, one half is advanced: here the largest part of the hand (the basis of the cranium) is equal with the rim of the pelvis: and in this state (TAB. I. and IV.) there will be little or no difficulty of succeeding with the forceps; and if lower down, as in TAB. II. where the occiput somewhat protrudes the external parts, there cannot be any doubt of succeeding. It is not only necessary to know the exact situation of the ears, before the forceps be applied, but also to be informed as much as possible respecting the dimensions of the pelvis; (this last will be more readily ascertained early in labour;) and if distorted, the degree of distortion; whether it is of the sacrum or os pubis, or of both.

To search for a distorted rim of the pelvis, feel for the base or large angle of the sacrum (TAB. XVI. *Fig. 2. Q.*) by passing the finger upwards and backwards, and if the base of the sacrum can be felt, it is distorted; but if it cannot, that part is supposed to be perfect. The degree of distortion, and the time of ges-

tation, will direct the Accoucheur, whether it be most adviseable to apply the forceps or to open the head : but this will be more particularly described, when treating of distorted pelvises ; TAB. XVII.

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### T A B L E II. (B.)

REPRESENTS the HEAD of the child so far advanced, as for the face to be turned in the hollow of the sacrum.

In this situation, the pressure of the handles of the forceps against the perinæum and anus, (as seen in TAB. I.) is now taken away ; but still they are to be kept close to the perinæum. Having made the quarter-turn of the pelvis (by some called the half-round turn), the forceps now pointing in a direct line with the great angle or base of the sacrum, (being the axis of the head of the child, and longest diameter of the lower chamber of the pelvis;) a very different direction from that of the first application ; this demonstrates, that the head of the child cannot be brought down in a straight line, when there is a just proportion between the head and the pelvis ; but is constrained, by the formation of the pelvis, to pass in a circuitous and somewhat oblique manner, which, in the human perpendicular structure, Providence has wisely contrived, to prevent the infant from dropping, or being delivered, without sufficient previous notice. The head has now entered the lower pelvis (or chamber), and the vertex presses on the perinæum, and the lesser fontanelle against the lower part of the pubes.

If the operator be not called until the head has advanced thus far, and the woman, through weakness and want of sufficient pains, may not be able to expel the child ; in this state, there cannot be any difficulty of introducing the forceps, part of the occiput having emerged under the arch of the pubes, somewhat beyond the os externum, the direction of the ears (over which the forceps ought always to be applied) being quite, or nearly towards the sides of the pelvis, and the head sufficiently disengaged from the uterus, so that there is no difficulty in introducing the forceps and extracting the head, in the common manner, as taught by lecturers on Midwifery. When the occiput has thus far advanced ; feeling for

an ear will be unnecessary ; as will be seen by the representation in the plate referred to.—This is called the easiest forceps case.

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### TABLE III. (B.)

SHEWS the HEAD still farther advanced, and, from the pressure of the parts surrounding it, causes the occiput to be elongated ; which sometimes happens in laborious cases. The perinæum is represented as greatly on the stretch ; and much care should be taken to prevent laceration. If there be sufficient pains, the forceps may now be removed ; but if the head should come forwards with much forcing before the forceps can be disengaged, the palm of one hand must be applied over the perinæum, and endeavours used to prevent the head from advancing too fast by pressing it back with the forceps until the os externum is sufficiently dilated ; and also to prevent as much as possible, by persuasions, the patient's forcing down, to prevent laceration. If the forceps remain over the head until the child is delivered, the handles will turn up close to the abdomen of the mother in bringing the child out in a proper circular direction ; or they ought to be so directed with one hand, whilst the other supports the perinæum, to prevent its being injured.

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### TABLE IV. (B.)

THIS case is the reverse to that of TAB. I. The FACE of the child being now to the left side of the mother, and its right ear consequently somewhat to the left of the pubes ; she being on her left side ; the blades of the forceps are to be introduced in the same manner over the child's ears (as directed in the first plate), and the same mode of extracting, with that traction of the forceps, from handle to handle, is to be adopted : but instead of turning the right blade upwards and

back towards the sacrum, it must now be turned down towards the sacrum ; and the left blade will turn up towards the pubes, to the right side of the pelvis, so as to pass the face of the child (which is now undermost) into the hollow of the sacrum. When it has taken this quarter-turn, it is then placed, as in TAB. II ; and must be extracted in the same manner.

In TAB. I. the section is supposed to have been made while the handles of the forceps were pressing the perinæum close against the rectum and anus, (which will always be the case in the living subject,) to represent the forceps in its proper direction : but in this plate the section is represented previously to the introduction of the forceps, in order to display the head of the child as resting on the perinæum ; so that the forceps will now appear lying over the rectum, but in their proper parallel direction to the head of the child and the axis of the pelvis.

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### *Description of the Vectis ; and the mode of applying it.*

HERE is also a full view of the double vectis ; one end wider, and with a greater curve, to suit different heads, and the different parts to which it may be applied. The vectis will sometimes assist in bringing the occiput round, towards, and under the os pubis, so as to pass the face into the hollow of the sacrum, where the pains alone are not sufficient. And in case of cessation of pains, from fatigue and weakness, when the head is not large, the passing of the blade over the occiput, so as to command an extracting power, will sometimes renew the pains, or, if become languid, will increase them by merely giving a slight remove of the head with the vectis. But if the blade of the vectis cannot easily be passed over the occiput, (for no violence must be used,) so as to command a necessary extracting force, it will be better to apply the blade of the vectis to the side of the head, over the ear and mastoid process, (which in general is the most common mode,) in the same direction with the right blade of the forceps : here, by pressure, and at the same time gently extracting in a cautious manner, so as not to withdraw the blade ; pressing also with the handle lightly upwards against the pubes, or a finger partially introduced between the pubes and vectis, will often answer in turning the face into the cavity of the sacrum. If there be slight pains, then

will be the time to give action to the *vectis*, as recommended when the forceps is used; and when the pain is off, to rest, until the return of another. When the *vectis* is properly managed, it will keep turning with the head; and when the face is opposite to the sacrum, it may be withdrawn, if the pains be good, otherwise it may still be of use to assist the advance of the head through the *os externum*: (in this state the blade will be against the side of the pelvis, opposite the ischium.) Should the pains cease through fatigue and weakness, when the face is in the hollow of the sacrum, (as in TAB. II;) the *vectis* (not being sufficient to deliver the head) may be withdrawn, and the blades of the forceps easily introduced to extract the head. When the head of the child happens to be fixed in the pelvis, from being large, so as to admit with difficulty only one blade of the forceps without risk to the mother, it will not be adviseable to withdraw the one introduced, but to use it as a lever (which in fact it is, though not exactly so shaped,) and if it be properly applied over the ear and mastoid process, it may answer every purpose: for, by raising the handle in time of pain, and pressing it gently against the pubes (or a finger so placed), as previously observed, and by applying proper extracting force, the delivery may be greatly assisted.

The larger the curvature of the blade, the greater will the power of extracting be: but no violence ought to be used in passing it up between the child's head and the uterus: a blade with no greater curve than that of the forceps, may answer. When the blade is properly introduced, and every part placed even and close to the surface of the head, where it is to be kept, the left-hand at the same time being applied to the lower part of the blade to make it steady; the action of the right hand pressing the blade even, against the head, and making use of the necessary traction; this method will in general answer for turning the face into the hollow of the sacrum, without raising the handle against the pubes, and thereby prevent injuring the urethra, &c. But if it be found necessary to raise the handle against the pubes by way of fulcrum, it must be done with the greatest caution, deliberately, and not by any sudden motion of the handle.

The *vectis* (single blade) acting as a lever, ought not to be used until the situation of the head of the child is ascertained by the feel of an ear, (as in cases where the forceps is applied;) for, if introduced indiscriminately, much mutilation may ensue: but when it is certain to what part it can be applied, either over the occiput, or an ear and mastoid process, as the case may require, it has been known to succeed by increasing weak pains, or by exciting their return after they

have been suspended. When applied over the occiput, (as represented in this Plate,) it ought to be introduced so far over, as to command a small extracting force, without pressing the end into the head. The blade, as seen over the head in this Table, may be better calculated to be passed over the ear and mastoid process, having but a moderate curve ; but where the occiput is to be brought round under the pubes, the blade may be required to be longer and wider, (as at the opposite end) ; but when the head is very large, there will be less difficulty in passing the blade over the ear, the space being widest. It must be remembered, that applying too great force with the end of the blade upon the head of the child will do injury ; and if the counterpart (handle) be pressed too violently against the pubes, the neck of the bladder and vagina must suffer : but this last may be prevented by introducing a finger a little way between the pubes and handle, by way of fulcrum ; as previously noticed.

From the hand which grasps the handle of the vectis, proceeds the spring of action ; that part of the head to which the blade is applied, is the part to be acted upon ; and the central resting point (fulcrum) being against the pubes, receives its ratio of pressure, according to the force used.

The mode of introducing the vectis between the head of the child and the uterus, is the same as recommended for passing up the first blade of the forceps ; which has been particularly described.

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### T A B L E V. (A.)

THIS is termed a FACE-PRESENTATION ; the chin towards the cavity of the sacrum ; the occiput thrown back between the shoulders ; the forehead resting on the perinæum ; the face pressing over the lower part of the rectum ; the ears against the side of the pelvis ; the large fontanelle opposite the os externum ; the waters discharged, the uterus closely contracted over the child, and thus forced down by the pains. If the pains be considerable, and the child small, it may be delivered without any other aid ; but should the head be large in proportion to the pelvis, the pains will not be sufficient ; and unless the position of the head can be altered, the pressure on the head and distention of the neck will

destroy the child. In such cases, if the head be not advanced too low down in the pelvis, (when the Accoucheur is first called in to the patient,) it will be adviseable to turn the child, and deliver by the feet : but situated as it now is, it will be necessary to apply the vectis over the occiput, in order to bring it down to the pubes, and at the same time to apply two fingers on the forehead to assist in forcing the chin upwards. If this can be accomplished, and the occiput be brought under the pubes, it then becomes a *common* case ; and should there be pains, the head will be delivered without the forceps.

But if the preceding mode should not answer, the forceps must be applied over the ears, in order to extract the head. If the vectis, in this case, be inserted over the chin or mastoid process, the child will inevitably be destroyed ; as by that means the neck, which is already greatly on the stretch, will, by the pressure of the vectis, be still increased. But as no part of the head has yet pressed against the os externum, that part cannot have been materially dilated ; but, ever since the commencement of labour, it must have somewhat relaxed.

In applying the vectis, the handle must be pressed against the perinæum (as seen in the plate), to give it a proper direction to pass up between the uterus and the head of the child ; and must be guided with one or two fingers of the right-hand in the same manner as when the blade of the forceps is introduced. Should the forceps be found necessary, from the size of the head, faintings, floodings, &c. they must be introduced over the ears, and the handles kept close against the perinæum. The lateral or double-curved forceps may in this case be preferable. If an attempt be made with the forceps to reverse the direction of the head, by giving it the half-round sweep, turning the occiput to the sacrum and the chin to the pubes, the child cannot survive ; the neck will bear a quarter-turn, but no more, with safety to the child.

In this subject is seen part of the funis umbilicalis, of the usual size, twisted, or spiral-formed, (which shape it generally assumes about the end of the third month.) The funis, in common, at the full time of gestation, is about two feet in length ; but it has been sometimes found so short as six inches, and at others of the length of six feet and upwards. The size of the cord is regulated in a great measure by the quantity of mucus, or gelatinous fluid, contained in the membranous cells of which it is composed, secured by the reflection of the amnion and chorion. During labour, if, from accident, the circulation in the cord be in the least impeded by severe pressure only for a moment, the child is weakened ; and if the circulation

be suspended for a minute, the child will die, (as observed in treating on Natural Labour,) because the blood cannot pass through the cord from the placenta. The funis is supposed to originate from the foetus, passing from the navel, nearly about the centre of the child's abdomen, to the placenta. In the human subject, the funis consists of two arteries and one vein ; the latter is large in proportion : but in quadrupeds the funis consists of two arteries and two veins ; by which the circulation is supported between the foetus and placenta.

The funis umbilicalis is discovered in animals of every description (and in vegetables) ; its uniformity is observed to be most general in the human-kind. The vessels run in a spiral direction, and the arteries are frequently convoluted about the veins, and, at intervals, are formed into little clusters or knobs in a very peculiar manner ; not any valve is to be discovered in the vessels, and the funis is also void of lymphatics and nerves, no pain being caused by tying or dividing it. The belly of the foetus is in contact with the placenta until about the fifth or sixth week, (TAB. XIV. *Fig. 8.*) when a flattish cord is perceptible ; and about the end of eight weeks the cord is nearly an inch in length ; (TAB. XIV. *Fig. 7.*) The vessels, until about the end of ten weeks, appear parallel to each other ; but shortly after they take the spiral course, and the cord begins to assume a conical form, being somewhat largest at the part next the abdomen.

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### TABLE VI. (A.)

THE FACE towards the PUBES ; the head, in this direction, having been forced down into the pelvis by the labour-pains. In this case, if the head be not large, or the pelvis narrow, it will pass, and be delivered by the pains ; the occiput will come out first, and fall over the perinæum, as it would from under the pubes, if it came that way. But if the head be large, there will be great hazard of the perinæum being lacerated ; if, by applying the vectis over the mastoid process, which should be first attempted in order to bring the chin below the pubes ; it may then be easily managed, and with less hazard of any injury to the perinæum. But should this not succeed, try to pass the vectis behind the occiput ; when so done, it will assist the pains in advancing the occiput towards the os externum : it

may be difficult to pass the blade so far over as is here represented ; yet, the blade ought to be sufficiently advanced, to command an extracting force, on all occasions.

But should the head prove too large for this mode, the forceps must be applied over the ears, and the head extracted by drawing it down in the same manner as when the face is towards the sacrum ; (*vide TAB. II* :) the occiput advancing to the os externum, will turn out over the perinæum, as just observed ; after which, the head is to be extracted upward towards the abdomen, in the usual manner.

The perinæum ought to be cautiously guarded with one hand against laceration ; and the head prevented from advancing too fast, by keeping it back until the os externum has gradually and sufficiently dilated. Turning the face to one side of the pelvis will make the case worse ; and turning it into the cavity of the sacrum (in this stage of labour) must destroy the child (as observed in the preceding case.) Take notice whether the face be inclined a little to one side of the pubes ; if so, turn it opposite to the pubes at the time of drawing the head down.

The dotted line passing up on the side of the head, over the processus mastoïdeus and chin, represents the shape of the original Dutch vectis by Henry Roon-hayson ; being made of steel, with a moderate curve at each extremity, somewhat rounded ; its length ten inches and a half, breadth one inch, and thickness one-eighth of an inch.

If the position of the head can be discovered early in labour, by the direction of the fontanelles, and it be known that the face is towards the pubes ; this position may be changed, by passing one or two fingers into the vagina, and by using gentle pressure upon the side of the head, near the coronal suture and the symphysis pubis, and pressing steadily during a pain against the parietal bone : it might be possible to turn it so, that the succeeding pain may place it in its proper direction : but should this opportunity be lost, or the Accoucheur be unable to accomplish it, still, when the membranes are fully dilated, (as seen in TAB. XI. *Fig. 1.*) by rupturing the membranes, and instantly passing the hand up, before the waters are discharged, the position of the vertex may be reversed, and the face passed towards the sacrum in the diagonal line E. F. (TAB. XV. *Fig. 2.*)

## TABLE VII. (B.)

FACE PRESENTING, with one ear to the sacrum and the other to the symphysis pubis, the occiput pressed back between the shoulders, and the neck greatly on the stretch ; the chin being to the left side of the pelvis, and the forehead to the right side. The head having advanced thus low down in the pelvis, it is not adviseable to attempt to turn the child ; but if the head be moderate in size, the pelvis well formed, no alarming symptoms, the patient's strength good, and she attended with pains; the head, thus situated, will be delivered by the labour-pains only, and all will terminate as a natural labour ; but it may be tedious; the chin (by the pains) will be brought round, and slip from under the pubes. But should symptoms require the forceps, the operator must first feel for an ear, to discover the exact situation of the head. Those who have not been long in practice, may be liable to err when the vertex presents ; for, when the head is low down, the face can be felt under the pubes; hence they are apt to think the face presents : but when it does present, and has only just entered the pelvis, the face now can easily be felt ; and when it gets lower down, it will rest on the perinæum (as in this case), and as it continues to advance it will force the perinæum backward. To feel for the face now, the finger must be passed from one side to the other, and the nose, &c. will be perfectly distinguished : also by passing the finger horizontally under the pubes, an ear will be felt, with the smooth part downwards.

In order to apply the forceps to the head (as represented in this Plate), the first blade is to be introduced with the left hand, guided by one or two fingers of the right hand, previously introduced between the pubes and the head, in the manner directed in TAB. I. ; keeping the handles of the forceps close against the perinæum, to give the proper direction of the forceps to the axis of the pelvis. When the handles are locked and secured with a fillet, extract from handle to handle ; at the same time bring the chin round to the symphysis pubis ; (*vide* Plate IX.) which is to be done by passing the left blade, being next the sacrum, downwards to the left side of the pelvis, and the right blade upwards from the pubes : the chin will thus turn out from under the symphysis pubis, and the head will follow. The necessary precaution is to be observed in applying the palm of one hand over the perinæum to prevent laceration, and not to suffer the head to

be delivered before the os externum is sufficiently dilated: if the pains be considerable, the forceps may now be taken off. Being advanced thus far, the case becomes a natural one; and delivery may be effected by the pains only.

N. B. The outlines of the bones of the head, sutures, fontanelles, and vertex, in this presentation, are to be seen, with references, in TAB. XIV. *Fig. 3.*

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### T A B L E VIII. (B.)

THIS FACE-PRESENTATION is directly contrary to the last; (TAB. VII.) Here the chin is to the right side of the pelvis, the occiput to the left, and the neck equally on the stretch. The forceps (if necessary) should be applied over the ears, in the same manner as in the preceding case; but the chin, now being upwards, is to be turned to the right, downwards, round to the symphysis pubis; which brings it in the same situation as the former. If, in this or the preceding case, the chin should be turned to the cavity of the sacrum, it will make it still worse, and most probably destroy the child.

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### T A B L E IX. (A.)

THE FACE is here represented as brought round to the symphysis pubis, (as directed in the two preceding Plates:) which constitutes what is termed a natural case; and the head may be extracted by the forceps; or if the pains be efficient, the head will be expelled by them alone: in this direction of the head, the mouth of the womb is greatly on the stretch. It may happen, that, the pains having forced the head thus low, and yet not being adequate for the expulsion of the head, owing to the fatigue, fainting, &c. of the patient; under such circumstances, the forceps should immediately be applied. This case, and that of TAB. II. are the least difficult for the forceps.

There is much similitude in the application of the forceps between the cases I. IV. and those of VII. VIII.; but in the latter, the face is turned towards the pubes; and in the former the occiput is turned to the pubes. Also, the same between the cases II. and IX; the face in one lies towards the sacrum, and in the other to the pubes. Likewise between V. and VI; one with the chin to the sacrum, and that of VI. to the pubes. All of which (though reversed) may be said to terminate like natural cases, because the head is the first part delivered, and nature is sometimes capable of expelling it, in such presentations, without the assistance of art. It is to be observed, that although in the cases VII. and VIII. the ears are represented as being directly opposite to the pubes and sacrum; yet the direction of the ears may sometimes vary a little, and be either inclined more to one side or to the other: if this be discovered by the touch of the finger (in examining), the forceps must be directed carefully over the ears, and the chin brought round to the symphysis pubis whilst extracting.

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### T A B L E X. (A.)

THIS only represents the different directions and appearance of the straight (or single-curved) FORCEPS, compared with those of a lateral curve also, (by some termed the double-curved forceps;) the handles of the last appear to advance much nearer to the abdomen of the mother.

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### *Some general Remarks on Face-Presentations.*

ALTHOUGH the head of the child may pass by the labour-pains only, and be delivered after a tedious labour; yet it is well known that long and severe pressure on the head, in such presentations, will often destroy the child in the birth, or shortly after; or even, if the child should survive, its mental faculties may be materially injured. Therefore, if assistance can be rendered either by the forceps or vectis, so as to preserve the life of the child, by shortening labour, and

relieving the soft parts of the mother from the counter-pressure of the child's head (ever liable to produce inflammation in severe cases), the judicious use of such instruments must be acknowledged as of real benefit.

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## T A B L E XI.

### *Figure 1.*

REPRESENTS a section of the PELVIS with its contents, after parturition has commenced, at the termination of nine months' gestation. The uterus being fully distended (as appears by the body, &c.), and the labour so far advanced as for the os uteri to be about three inches in diameter ; the membranes (amnion, chorion, and decidua reflexa) protrude through the os uteri from the pressure of the liquor amnii, caused by the action of the uterine muscles as at the time of pain ; and at that time they generally rupture : the external coat (decidua reflexa) is of an opake flocculent texture.

The head of the child has partly entered the cervix uteri, and is about to advance into the rim of the pelvis, diagonally, with one ear towards the symphysis pubis, and the other towards the os sacrum on the opposite side, as most favourable for its passing into the upper chamber of the pelvis, the long axis of the head being in the direction of the long axis of the pelvis, as particularly marked by the dotted line, TAB. XV. *Fig. 2.*

The head of the child is generally so low down at this stage of labour, as to be perceived by the touch, through the membranes ; but not always : (which was noticed when treating of natural labour :) part of the decidua reflexa being removed, affords an opportunity of giving a distinct and picturesque view of the greater part of the child (surrounded by the liquor amnii) through the transparent membranes, amnion and chorion.

Although the chorion, in early pregnancy, abounds with innumerable blood-vessels, (notwithstanding which,) these gradually disappear ; consequently this membrane acquires a transparency towards the conclusion of gestation, and becomes thinner, whilst that of the amnion rather thickens.

*Figure 2.*

A CIRCULAR piece of the body of the uterus being cut through, and dissected from the external surface of the outer lamina of the decidua, to which it firmly adhered, called *decidua vera* (having the double laminæ, or coats;) and by turning this (Fig. 2.) aside, the dissected surface will be in view.

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*Figure 3.*

Is a representation of the external surface of the Decidua Vera, as dissected from the uterus: and by turning this (Fig. 3) aside, a considerable portion of the Decidua Reflexa will be seen (surrounding the other two membranes, amnion and chorion), being a continuation of that part of the tunic or lamina, distended in a globular form, projecting beyond the os uteri; the whole having the same flocculent appearance; as likewise has the internal surface of the inner lamina of the Decidua Vera, being one and the same lamina (or membrane) with the Decidua Reflexa; but the Decidua Reflexa is so named, as being separated, or rather reflected down, from its external lamina all round the edge of the placenta (to which it firmly adheres), and thence inverted, distended, and forced down by the liquor amnii, together with the chorion and amnion, the other two (internal) membranes which encompass the child.

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*Figure 4.*

THIS figure, containing a part of the Decidua Reflexa, when turned aside, will display the transparent membranes, chorion and amnion, through which the child appears, surrounded by the liquor amnii, and as lying in the most natural and common attitude at this stage of labour; but more generally lower down, so as to be perceived by the touch of the finger; as just noticed.

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## THE DECIDUA.

THE temporary accommodating membrane, known by the name *cadua*, or *membrana decidua*, (formerly termed false or spongy chorion, *membrana cribiformis*,) is not the least conspicuous of the effects of nature's wisdom towards the accommodation of the human foetus.

This third membrane, the *tunica decidua*, has excited the attention of able Anatomists. It was known to the antients ; and it has been particularly noticed by Haller and Harvey. But it appears that the portion termed *decidua reflexa* was first discriminated by Dr. William Hunter ; who, in his works, has particularly described this tunic.

The ovum is supposed to pass out of the ovary through one of the Fallopian tubes into the uterus ; but previously to this (as soon as impregnation has taken place) the uterus undergoes considerable changes, and sympathetically prepares a third coat, by means of a fluid transuding for that purpose through the small arterial vessels lining its whole internal surface, (excepting the cervix). The fundus is the first part supplied with this delicate tunic, which gradually extends over the body ; by which the Fallopian tubes are completely plugged up as soon as the ovum enters the uterus. In general the ovum unites to that part of the uterus (or decidua) where it first enters, either immediately over the tube by which it passes, or close by (the fundus) where the vessels of the Chorion and Decidua intermix, ramify, and form the maternal part of the placenta, which becomes inosculated to those of the uterus.

Physiologists differ in opinion, by what means the inner tunic of the Decidua, termed *reflexa*, is separated from the external tunic uniting to the uterus : but this is not essential for the practitioner in Midwifery, however satisfactory it may be to the ingenious naturalist in pursuing and discovering nature's laws.

Although the ovum generally adheres to the fundus uteri, yet it is found uniting to other parts of the uterus, even over the os uteri. The foetus increases in size, together with the accumulation of the liquor amnii, by which the three membranes, amnion, chorion, and decidua reflexa, are forced down, so as, about the eighth or tenth week of pregnancy, to fill up the cavity, or internal surface of the uterus ; (*vide TAB. XIV. Fig. 7:*) in this state the uterus may be said to be

lined with three membranes of the Decidua, *viz.* those two connected, and uniting with the uterus (termed *decidua vera*,) as composing the double lamina, and the separated single tunic (being only a portion of the inner lamina) reflected down, which closely surrounds the chorion and amnion, uniting all round the edge of the placenta.

The decidua (or cadua) is so named, from being cast off after every labour. It is called by one author, *decidua*; by another, the *connecting membrane*: and perhaps with equal propriety might be termed the *accommodating temporary membrane*.

An ingenious author remarks; “ That accurate anatomist, Dr. Hunter, has discovered the false or spongy chorion, called by him the cadua or membrana decidua, to be a lamella or efflorescence of the womb, which peels off from it like a slough, at each successive birth. It is an opake membrane, thicker than the true chorion, and exceedingly tender in its texture, being hardly firmer than curd of milk, or coagulated blood. It is however vascular, having vessels which carry red blood from the uterus. It is not to be injected by injecting the placenta, being not a foetal, but an uterine part. After delivery, the greatest part of this membrane is left behind, grows putrid, gradually dissolves, and comes away in a fluid state along with the cleansing.” (It frequently, however, is so long in separating, that, on dissection of several who have died of the puerperal fever, the inside of the uterus has been found lined with it; and it has been in so black a state, that the womb itself has been supposed to be mortified, till the mistake was discovered by wiping off this substance.) “ Thus we have a matter entirely fitted for absorption; and as the communication between the mother and child is carried on, not by continuity of vessels between the placenta and uterus, but a reciprocal absorption of blood by means of patulous orifices, we may conclude that the womb is an organ, of all others, the most favourably formed to absorb.”

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### THE CHORION AND AMNION.

THE *Chorion* and *Amnion* are two membranes which encompass the embryo, when passing out of the ovarium; and are in this Plate represented as surrounding

the foetus *in utero*. The chorion, originally the outermost coat of the ovum, becomes the second or middle membrane after entering the uterus; being then surrounded by the Decidua. The chorion abounds with a vast number of vessels; one part of which helps to form the placenta next the utcrus. From this abundance of vessels it takes its name, according to the Greek derivation; a word signifying numbers: but this vascularity diminishes as the ovum increases in size, becomes thinner, and in the latter months of pregnancy it is found to be smooth and transparent, excepting about where it is attached to the placenta. It forms an inner covering to the funis.

The *Amnion*, or innermost membrane of the ovum, is at first thin, and remarkably transparent, in the human subject; but towards the end of gestation, becomes of a firmer texture, and its innermost surface perfectly smooth; it is but very loosely attached to the chorion by cellular membrane in the first months of gestation; but is more intimately connected with it as gestation advances; and between these two membranes (sometimes) a fluid is collected, and discharged in time of labour, by a partial rupture (termed false, or bye-waters;) it makes the outer covering of the funis, and lines the whole ovum. The amnion contains the waters in which the foetus is immersed. It is found in every description of animals, and, in some, with red vessels, as in the cow, &c.

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## LIQUOR AMNII.

THE *liquor amnii*, commonly called *the waters*, is that fluid by which the foetus is immediately surrounded; but the particular manner of its accumulating is not perfectly understood. It is not unlikely but that the amnion attracts and absorbs the fluid called the waters, in a manner similar to that contained in hydatids: the membrane (or cyst) admits fluids to enter; but is of such a texture as to prevent their return; consequently keeps distending until ruptured. The use of this liquor is evidently to defend the child from external pressure, and is the chief cause of the expansion of the uterus. The more young, imperfect, and tender the foetus, the greater proportion of this fluid is found to be necessary for

its protection. The larger the foetus, the greater is its strength, and the less security from external injury is necessary. The liquor is also of great use in distending and forcing down the membranes, dilating the os uteri and vagina during labour, from the action of the uterus, &c. as formerly noticed.

It is sometimes of a greenish cast, often milky; at other times of a brown or yellowish colour, either from some constitutional or accidental cause. On an average, the quantity of water which is contained within the amnion at the full time of gestation, is computed from about two to four English pints; at others, scarcely six ounces. In the early stages, the quantity is larger in proportion to the size of the uterus, than afterwards; and when the child has been some time dead, it is generally in the largest quantity.

The following are the particulars of the composition of the LIQUOR AMNII, as ascertained by chemical investigation.

*Liquor Amnii*, in women, contains water, muriate and carbonate of soda, phosphate of lime and albumen. In the cow, an extractive animal matter, sulphate of soda, and a peculiar acid called amniotic acid, which was discovered by Vauquelin and Buniva. It is not ascertained whether this acid exists in the liquor of the amnion in other animals. It exists in the form of a white pulverulent powder, slightly acid in taste, but which sensibly reddens vegetable blues.

It is with difficulty soluble in cold, but readily in boiling water, and in alkohol. When exposed to a strong heat, it exhales an odour of ammonia and prussic acid. Assisted by heat, it decomposed carbonate of potass, soda or ammonia, and forms amnates. It produces no change in solutions of nitrate of silver, lead, or mercury. Exposed to heat, it is decomposed into ammonia and prussic acid.

*Amniotic acid* may be obtained by evaporating the liquor amnii of a cow to a fourth part, and suffering it to cool: crystals of amniotic acid will hence be obtained in considerable quantity.

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## THE PLACENTA.

IN this Plate is seen a small portion of the external surface of the PLACENTA, to which the uterus adheres, previously to its being dissected off; and from the edge of which expand the Decidua Reflexa, Chorion, and Amnion.

The placenta (or *cake*, whence, from the resemblance, the name is derived) is chiefly circular, and commonly about six inches in diameter, covering about one fourth of the ovum, and, at its centre, at least an inch thick ; but it cannot in all subjects, or at all times, be supposed exactly of the same size or shape : for as its dimensions may happen to increase, so will the thickness proportionally diminish. The thickness decreases gradually towards its circumference, from the edge of which the membranes are continued, surrounding the *foetus* and liquor amnii. The external part of its edge, or rim, is more firm and compact than at its centre ; and the external part next the uterus appears divided, lobulated, with intervening membranous filaments, resembling clotted blood ; and when sufficiently washed, its fibrous cells distinctly appear : it is soft and spongy to the touch. The internal surface next the child, covered with the amnion and chorion, is concave, and the external part next the uterus being shaped to it, is naturally convex. The inner surface is covered in great abundance with projecting trunks and branches of umbilical vessels, arteries, and veins ; the arteries running (peculiar only to the placenta) over the outside of the veins, spreading and covering its surface, and diving into the substance, where they anastomose, ramify, and accompany each other according to the general mode of vessels.

The insertion of the umbilicus into the placenta is generally about midway between the centre and its edge, sometimes near to the centre ; but it is liable to be affixed to any part. The funis is not always connected immediately with the placenta ; its union may happen to be only with the membranes, chorion and amnion ; in that case, the vessels run in distinct branches towards the placenta (on the outside of the spongy substance) ; and in this instance the funis will be more liable to separate at the time of extracting the placenta.

The placenta is generally attached to the fundus and anterior part of the uterus ; but it frequently adheres to other parts, and sometimes to the os uteri and cervix, (as previously observed) ; in which situation, if it be not judiciously managed in time of parturition, a fatal hemorrhage may ensue.

The placenta is a viscus of great importance, by which the existing principles of the child are preserved. That part of the placenta next the uterus (the chorion), possessing one set of vessels, which, uniting with those of the outer lamina of the decidua, are termed *maternal* (as belonging to the mother) ; and the innermost surface, next the *foetus*, having another set of vessels proceeding from the *foetus* by means of the umbilical cord, are therefore termed the *fetal* part ; so that this viscus may be compared to a double cake, and, in very early gestation, can be

separated ; but they soon become firmly united by means of its membranous and vascular parts.

It appears from experiments by injecting, that the blood does not flow immediately, or in a direct stream, from the mother to the child ; yet, as every particle of matter originates in the mother, it is from her conveyed by means of the uterus to the maternal surface of the placenta ; the vessels from which ramify into the cellular substance of the placenta, and are intermingled with the foetal vessels ; which again ramify like those of its opposite, or maternal part. But the two sets of vessels do not appear to have any immediate communication by the regular circulating fluids, and are therefore totally distinct. An injection by the funis will only reach the vessels of the foetal part of the placenta ; nor will an injection from any uterine vessel extend farther than the maternal branches, unless it consists simply of water ; which may act by transudation into the cells, as the water does in an anasarca.

It is observed, that the maternal part of the placenta consists of cells, which are constantly filled with blood by the spermatic and hypogastric arteries ; and this blood is absorbed by the corresponding veins.

The foetal vessels open into the cells, and are immersed in the arterial blood from the mother : whence it will appear, that hemorrhages must frequently happen in the human subject, while they never occur in animals not possessing the decidua. And according to the opinion of Dr. Harvey, the placenta performs the office of a gland, distributing air, and secreting the nutritious juices from the blood, conveyed, by the arteries of the uterus, from the parent to the foetus through the vein of the funis, in the same manner as the milk is secreted from the breasts.

This (unique) gland, the placenta, neither possessing nerves nor lymphatics, is so contrived as to secrete, prepare, and keep up the circulatory medium by absorption, and to convey and reconvey to and from the foetus the fluids necessary to preserve its existence ; also supplying, by means of the uterus, oxygen air for its animation.

Three kinds of circulation appertain to the foetus : *viz.* one between the uterus and placenta, by absorption ; another between the placenta and foetus, by means of the vessels through the funis ; and a third within the foetus itself.

Every practitioner may readily perceive that the blood is conveyed from the foetus by the arteries, if he only press the funis between his thumb and finger

immediately after the birth of a living child: a pulsation will thereupon be felt next the child, and the vein of the funis towards the placenta will be enlarged, or swell, and the part nearest the child become flaccid: therefore if the funis be divided and not secured by tying something round it, the child will bleed and die; but the mother will not receive any injury, if no ligature be passed round the divided end next the placenta.

It is also known, that a woman may die of an hemorrhage occasioned by a separation of the placenta, and yet, after her death, the child be born in perfect health. But if the placenta be injured without separation, either by the rupture of the vessels which pass upon its inner surface, or in any other way; the child, being deprived of its proper blood, would perish, yet the mother receive no injury. The placenta, with the umbilical cord and membranes attached, are called *secondines*, or after-burthen, from their being delivered after the birth of the child.

The structure of the placenta in some brute animals is not always similar to that of others: but in all animals something is discovered analogous to it. In the sow, for instance, the vessels terminate on the membranes which perform the office of placenta; but in most other animals there is a permanent substance destined for the purpose.

In the cow, the placenta is always attached to the part of the uterus prepared by nature for that purpose, and to this it is constantly and permanently fixed: it is divided into many lobules, composed of long and vascular fibres, called *cotyledons*, or cups, affixed to as many temporary eminences of the internal surface of the uterus, termed *papillæ*: by these vascular portions the circulation is preserved between the parent-animal and the young. The placenta of this animal, at the time of birth, readily separates, and this separation is never attended with hemorrhage.

In some other animals, as the mouse and dog, the placenta is like that of the cow: but each of the young has its peculiar cell in the uterus of the mother: in the cat, and some others, it is in the shape of a belt.

The monkey species are said to be an exception amongst the quadrupeds (having no papilla), in which the tunica dæcidua is always discovered. In birds are found placentæ, but their form and structure are still different; vessels are sent from the chick to the yolk of the egg for its nourishment, another set of vessels intended for the functions analogous to respiration.

## TABLE XII.

AN external view of the right side of the BONES of the PELVIS ; which, when placed or turned over the head of the child (in either of the sections the symphysis pubis meeting its fellow on the left side), will more completely represent the situation of the head in the pelvis and vagina as it advances in labour. The acetabulum, or cotyloid cavity for the reception of the head of the os femoris, is here distinctly seen, and the smaller cavity in the lower part of the same is for the synovial gland, which is supposed to secrete a lubricating fluid for facilitating the motion of the thigh-bone, and to prevent friction in the joint. The edge of the acetabulum is tipped with a cartilage called the supercilium. This socket is not perfect on the side towards the thyroïd hole, the bony edge being there deficient ; but this is supplied in the living subject by strong cartilaginous ligaments firmly united on the outside, and others on the inside, which are termed *ligamentum transversale internum et externum, vel ligamentum labri cartilaginei transversale*, from their passing across this notch from one point to the other.

The acetabulum, composed of the ischium, ilium, and os pubis, derives its name from the resemblance it bears to a sort of cup or measure which the antients used for vinegar.

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## TABLE XIII. (B.)

AN external lateral view of the lower part of the abdomen, the right thigh, nates, &c. ; the upper part being covered with drapery.

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## PART IV.

### REFERENCES TO THE TABLES.

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#### CLASS II.

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#### TABLE XIV.

##### *Figure 1.*

A SECTION of the PELVIS (the left side) with the principal parts of its contents as in the virgin state ; having been previously arranged and prepared for the artist.

This was engraved from a sketch taken by me from a drawing in the possession of Dr. Orme (by his kind permission) when I attended his Lectures on Midwifery ; being myself at that time a pupil at Guy's Hospital, London, and giving the usual attendance at St. Thomas's in union with that of Guy's Hospital. Here I employed much time in dissecting the human body, and was present at all lectures necessary for the initiation of pupils in their profession.

The external parts of generation are comprehended under the general term *vulva* ; the internal parts are, the vagina, uterus, and appendages.

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*Figure 2.*

Lines of the same view.

A. THE UTERUS, with its division, or aperture or fissure, passing up to the fundus, lying in an horizontal position.

B. VAGINA : which, in children, is nearly closed up, at its anterior part, by a membrane called hymen ; consisting of four angles or duplicatures of the membrane of the vagina. At the upper part there is a small opening for the discharge of the menses ; which in general is of the crescent (or semilunar) figure, and its concave margin is turned towards the pubes. But there are instances of the hymen being imperforate, and in that case, attended with great distress until an incision is made to give vent to the congeries of blood (*menses*) designed by nature to be conveyed off monthly. The vagina is subject to various diseases ; as previously mentioned, when treating of the Vagina.

C. RECTUM (*intestinum rectum*), takes its name from being somewhat in a perpendicular or *erect* position ; and nearly about the great angle or base of the pelvis, its name changes to that of *colon*. The anterior part of the rectum is united to the vagina, and, at its posterior part, to the os coccygis and sacrum by cellular membrane, in the living subject, when not separated by accident. The rectum is subject to inflammation, ulceration, stricture, &c. The lower part is surrounded by cellular and adipose membrane, in which abscess is not unfrequent, and, if neglected, is liable to become fistulous.

D. ANUS (orifice of the rectum), with the muscular fibres of its sphincter, (which is a complete sphincter, capable of great contraction.) Ascarides (thread-worms) are sometimes very troublesome about the internal part of the anus and rectum, occasioning, from their constant motion, intolerable itching, so as often to prevent sleep, produce symptomatic pain in the belly, and impede digestion ; cause pale face, picking of the nose, mucous slimy stools, &c. An injection of oil, generally, is a cure, or either a decoction or infusion of aloes and water ; rhubarb with hydrargyri submuriæ, as purges, may sometimes be required.—Cleanliness will prevent this complaint.

It is remarked, that worms seldom infest children till after weaning.

E. PERINÆUM, the septum or space between the lower part of the vagina and anus. It is chiefly composed of muscular fibres from the sphincter ani and vagina, the common integuments, and cellular substance. In its natural state, its extent, in common, does not exceed an inch in women (but considerably more in men), and its thickness that of the hand; but in time of labour, it is capable of vast distention (as previously noticed), and at this time is liable to laceration; it has also been known even to be perforated by the head of the child, instead of being torn up. The perinæum is liable to inflammation, abscess, &c. as in common with other parts of the body.

F. LABIUM PUDENDI, of the left side, (or labia magna, labia externa). The two external labia descend from the Mons Veneris, one on each side, and meet about an inch before the anus; uniting to the anterior thin edge of the perinæum: their junction with the perinæum is termed *frænum labiorum*, or *fourchette*, forming a kind of bridle or membrane, of some degree of firmness, extending across, but which is frequently torn, about the conclusion of labour. Just below the orifice of the vagina, within the labia, there is a short sinus, which reaches a little farther back than the vagina; by some termed *fossa navicularis*. The labia are subject to various diseases, abscess, oedematous tumours, excoriation, ulceration, phlegmonoïd inflammation, hernia, &c.

G. NYMPHÆ (*labia interna, alæ minores*): these extend from the clitoris downwards, are very vascular, and somewhat of a spongy texture. They terminate and are gradually lost in the sides of the os externum; the left is here represented; and in common they are concealed by the labia magna; but sometimes are found much extended and spreading, so as to require excision with the scissars; an operation termed *nymphatomia*.

H. GLANS CLITORIDIS (the left half), with its præputium; which are composed of semicircular folds of the integuments surrounding the glands, and much resembling the penis in men. In some few instances, it has been so elongated as to have become exceedingly inconvenient; and, under such circumstances, it may be safely extirpated, either by knife or ligature. When the clitoris is elongated

to a considerable degree, the term hermaphrodite is applied to such an object, as partaking the property of both male and female: but this point has never been satisfactorily cleared up, no urethra having been discovered. When the clitoris is distended with blood, it becomes erected and much longer; it then possesses great sensibility: the erection is supposed to be produced by two small muscles, acting similarly to those termed *erectores penis* in men.

I. CORPUS CAVERNOSUM. This is distinguished into two parts: these arise from the rami of the ischia and pubes, and unite at the *symphysis pubis*.

K. MONS VENERIS; being an elevation over the *symphysis pubis*, composed chiefly of fat and cellular substance, and covered with hair at the age of puberty.

L. OS EXTERNUM (entrance to the *vagina*), the boundaries of which, on its lateral and upper part, are chiefly by the internal surface of the *nymphæ (labia interna)*, and on its lower part by the *labia magna*, mutually uniting with and disappearing in the anterior edge of the *perinæum*.

M. OS PUBIS, (or *symphysis pubis*); the anterior and lateral termination of the os pubis on the left side. That surface or part, which, when united to its fellow on the right side by a firm, cartilaginous, ligamentous substance, (as appears in several of the Tables,) is termed *symphysis pubis*.

N. VESICA URINARIA, as when empty and collapsed, but supported by a pin: its substance is composed of three coats; the external (posterior) one, being the *peritonæum*; the next a texture of muscular fibres throughout its whole surface, called *detrusor urinæ*; and the innermost is membranous. The posterior part of the neck of the bladder is connected to the anterior part of the *vagina* by cellular membrane, and partly to the *uterus*; (*vide TAB. XIV. Fig. 5*). The neck of the bladder is connected to the posterior edge of the arch of the pubes by a small membranous fascia, to the internal surface of the os pubis; and its inner lining is continued down the urethra.

The bladder is subject to several diseases, such as the stone, induration or *scirrhus*, inflammation, ulceration, prolapsus, hernia, convulsive or spasmodic affections, &c. It is capable of great distension from urine being detained;

which may be caused by inflammation, spasm, or some accidental cause, as gravel, &c.

O. ABDOMINAL PARIETES, or common covering of the abdomen, turned back.

P. Part of the PSOAS MUSCLE (psoas magnus). The psoas minus is sometimes discovered; which was pointed out by Mr. Brookes.

Q. The LEFT THIGH.

R.R. In this space are contained (surrounded by skin and common integuments) fat, membranous, and muscular parts of the LOINS, RUMP, &c.

S.S. External parts of the NATES, or buttock.

T.T. MEDULLA SPINALIS, the left half, as cut through, secured in its bony canal.

a.a.a. External ILIAC VESSELS.

b. The left URETER, which enters the posterior-inferior part of the bladder, passing down between the coats, and opens at *f.* into the bladder.

c.c. Left OVARIUM. The *ovaria* are two oval bodies somewhat flattened, of a glandular consistence, but composed chiefly of cellular texture, no otherwise vascular than by having vessels distributed over their coat, which is of a rather whitish complexion. After the age of puberty, numerous vesicles are discovered; those near the surface are largest. These female ova are filled with a kind of coagulable lymph. Their number is commonly from fifteen to twenty, or upwards. When an ovum becomes impregnated, the peritonæal covering appears prominent and bursts, through which the ovum escapes into the Fallopian tube, and is conveyed into the uterus. When the impregnated ovum has quitted the ovary, there appears a kind of glandular body, of a yellowish aspect, left in the ovary, supposed to be the bed whence the ovum escaped, and termed *corpus luteum*; it is most conspicuous during the early part of pregnancy, and continues some time after delivery; when it gradually disappears. There is generally found in the peritonæal covering, at the part through which the ovum passed, a

small fissure, which, in a little time, heals and forms a cicatrix. In old women, the ova waste and shrivel, so as not to be perceived. The ovaria, on one or both sides, have sometimes been wanting, or discovered uncommonly small. In such cases it is generally observed that the growth of the external parts is early checked, and the marks of puberty not perceptible. It also has been known for the ovarium to form part of an hernial tumour. The ovaria are subject to various diseases; but the most common is dropsy.

*d.* TUBÆ FALLOPIANÆ (the left one.) These may be either entirely wanting, or impervious: they are subject to some of the diseases incident to the ovaria.

*e.* Part of the FIMBRIA to the Fallopian tube; as when prepared and expanded by art.

*f.* OPENING of the left URETER into the bladder.

*g.* URETHRA (passage for the urine from the bladder), situated about an inch below the clitoris, and just above the vagina; its length rather more than an inch, and about the size of a swan's quill, but may be so much dilated, as even to admit a stone of some magnitude to be extracted through it. But a judicious surgeon will be very careful not to stretch it beyond a certain extent, so as to prevent contraction afterwards; because the urine in that case must ever pass involuntarily. The urethra passes along the upper part of the vagina, through which it may be felt somewhat like a tendon: its structure is chiefly of condensed cellular membrane, surrounded by a vascular substance not unlike the corpus spongiosum; also by a small muscle, as described by Mr. Wilson: it is lined with the continuation of the internal coat of the bladder.

The meatus urinarius and urethra are liable to be infested with excrescences, which sometimes prove exceedingly troublesome, producing sensations similar to those from a stone in the bladder: extirpation, caustic applications, and bougies, will be found necessary. Exulcerations from acrid urine about the meatus, will require emollient applications. The *pruritus* is a complaint to which women are liable, but more frequently during the time of pregnancy; which is an irritation of the external parts (and sometimes internal), attended with such itching, as to be sometimes mistaken for *furor uterinus*: bleeding, cooling laxative medicines, emollient, anodine, and saturnine applications, may be useful; but if caused by sympathy from the uterus during pregnancy, palliatives must be resorted to; but a cure cannot be expected until delivery. Should it happen at the time when

the menses are about to cease, it may prove obstinate ; but still relief can be afforded. If it be occasioned by an affection of the bladder, the constant use of bougies has been found of great use ; but proper diet, and alterative cooling medicines, must also be attended to. The urethra is liable to be in part, or totally, inverted ; forming a tumour at the vulva, attended with pain and difficulty in voiding urine.

*h. MEATUS URINARIUS* (entrance to the urethra): the two small dots, one on each side, represent the lacunæ or glandular orifices which secrete a mucilaginous fluid to prevent excoriation from acrid urine ; these glands are sometimes so large, that, by an unskilful hand, the catheter (by mistake) has been pushed in : therefore, when resistance is perceived, no violence ought (ever) to be used ; for if cautiously and properly introduced into the meatus, it (in common) will readily pass into the urethra and bladder.

*i. CARUNCULÆ MYRTIFORMES*, being at the entrance of the vagina ; represented by four curved strokes, supposed to be the remains of the hymen, appearing as after being lacerated, or divided by the knife, contracted and separated into four distinct parts, each formed into the shape of a crescent.

1. 2. 3. Bones of the *os coccygis*.

4. 5. 6. 7. 8. *Os sacrum*.

9. 10. Two of the *vertebræ lumborum*.

0. 0. 0. *Spinal processes*.

---

*Figure 3.*

These outlines represent the upper part of the HEAD, as seen in TAB. VII ; having been forced down by the labour-pains, and meeting great resistance from the pelvis, which has become elongated, and by this means the sutures and fontanelles are exhibited to view.

A. The FORCEPS.

B. FONTANELLA MAJOR (anterior fontanelle, unossified), having four sides and

corners, composed of a tough compact membrane uniting the upper and anterior angles of the parietal bones and the opposite corners of the two pieces of the frontal bones, which, being rounded off, form a kind of quadrangular vacancy, which gradually acquires the consistence of bone. When the large fontanelle is felt during labour, which is distinguished by its four corners, the head cannot lie in a favourable position, and the labour will be tedious, (*vide TAB. V.*)

### C. VERTEX.

D. FONTANELLA MINOR (unossified), having only three corners and three sides. There are smaller fontanelles, one on each side, behind the ears, where the lambdoidal and squamous sutures meet; found convenient parts to be perforated in cases of preternatural labour, where the head cannot be extracted without its being opened to lessen the size, by letting out water, &c.

### E. OS OCCIPITALE, superior part.

### F. F. OSSA BREGMATIS, PARIETALIA, *vel* SINCIPITIS.

### G. G. OSSA TEMPORALIA.

### H. H. OS FRONTALE.

a. SUTURA FRONTALIS. This suture is, in some children, a continuation of the sagittal, reaching to the nose; in them, the os frontis being as two bones: and this happens sometimes in adult bodies.

#### b. b. SUTURA CORONALIS.

c. c. SUTURA TRANSVERSALIS, runs across the face through the bottom of the orbit of the eyes; it joins the os sphenoïdale, ossa maxillaria superioria, ossa nasalia, lachrymalia, *vel* unguis; ossa palatina, et jugalia, *vel* malarum.

The lower jaw, in adults, is but one bone; the fibres of which, in children, do not ossify till they are about two years old.

#### d. d. Superior edge of the EARS.

#### e. e. SUTURA SAGITTALIS.

#### f. f. SUTURA SQUAMOSA.

g.g. SUTURA LAMBDOÏDALIS. The superior part only is in view; it terminates on each side in a point quite down to the posterior and lower part of the cranium, somewhat in the form of the Greek letter lambda, in adults.

The CRANIUM, being composed of many different parts, has a two-fold advantage; first, by its pliability and accommodating quality, so as to be shaped to the formation of the pelvis during the time of parturition; secondly, after being firmly united by sutures, it is not so liable to fractures, as it otherwise might be.

—  
*Figure 4.*

A front view of the UTERUS, &c. as it appears about the third month of pregnancy, being the time when abortion most frequently happens. (This, in some parts, is similar to one of *Smellie's*.) The bones of the pelvis not being inserted, the soft parts appear more distinct.

About this time of pregnancy, the circulation between the uterus, placenta, and the numerous vessels of the chorion, begins to increase; which, in the plethoric habit, distends those tender vessels so forcibly as to cause them to rupture; and abortion is too frequently the consequence.

In such full habits, common reflection points out how necessary it must be, at this stage, to live sparingly, keeping the bowels open by means of some mild laxative medicine, losing a few ounces of blood from the arm, even before any pain in the back, loins, and pubes, appear, (the common symptoms preceding abortion,) and keeping quiet, with as much horizontal position as circumstances will admit of,—but more particularly to be observed, if, in any former pregnancy, abortion has happened about this period.

It is of considerable consequence to notice, that the taking away of only a few ounces of blood at a time (five or six) will be likely to prevent abortion; whereas copious bleedings must weaken the general habit, consequently the uterus, and thereby produce abortion.

a. The superior part of the INTESTINUM RECTUM; as when cut through, where the name changes to that of *colon*, near the lower part of the last lumbar vertebra; to distinguish which, a string appears as passing round the upper part.

*b. b.* TUBÆ FALLOPIANÆ, and FIMBRIÆ; represented as when expanded and prepared for the artist to copy; but, in their natural unprepared state, the fimbriæ in common appear loose and flabby, with irregular ragged margins, falling in various directions (at least in the dead subject); but it is not unlikely, when put in action, that they may display a similar appearance, from a kind of tentigo, with considerable energy, (either at the immediate time of coition, or soon after,) so as even to produce inflammation in the part of the peritonæum covering the ovarium, (known by the term *morsus diaboli*); at which part the ovum makes its escape, and is conveyed through the tube into the uterus. The texture of the tubes appears somewhat spongy and fibrous, capable of being distended. The lining is a continuation of that of the uterus, formed into longitudinal plicæ; the external covering partakes of the peritonæum; the orifices of the Fallopian tubes originating from the fundus uteri, are extremely small, but keep increasing in size till they reach the fimbriæ, even to the length of three inches.

*c. c.* Right and left ovaria.

*d.* UTERUS.

*e.* COLLUM UTERI.

*f.* A section of the VAGINA, the anterior part being removed, to shew the manner in which the collum uteri is suspended in the vagina.

*g.* ENTRANCE to the VAGINA; the posterior part of the OS EXTERNUM; with some of the CARUNCULÆ MYRTIFORMES.

*h. h.* LIGAMENTUM LATUM, or broad ligament; being a continuation of the peritonæum.

*i. i.* LIGAMENTA ROTUNDA; one on each side, terminating in minute expanded fibres. The round ligament is composed of a plexus of muscular fibres, nerves, and vessels, enveloped in a common membrane in the form of a cord or ligament, coming round from the uterus on each side, before the Fallopian tubes; passing out at the rings of the abdominal muscles; and its ramifications are finally lost, in and about the groins and Mons Veneris.

The broad ligament is laterally connected with the pelvis and the uterus, and the round ligament with the pubes anteriorly. When these ligaments have lost their elastic power, the uterus naturally falls through the vagina in such a manner that the menstrual discharge has been seen coming from the lowest part, which appears like a tumour, through the os uteri. The most common causes of this

complaint are, rising too soon after delivery, or abortion. It is not an uncommon complaint, and in different women is perceived in various degrees, and, like the *fluor albus*, generally proceeds from a relaxed state of the parts, or from some considerable exertion in labour, or accidental violence. The sensation caused in the back is that of dragging, and much uneasiness about the hips, arising from the broad ligament. Also a pain in the groin happens nearly where the round ligaments are inserted, and the uneasiness there experienced is very distressing, though not actually pain. By long continuance, it interferes with the passing of stools and urine, and at such times is forced down, and the sensation it occasions is like the feel of an egg, as expressed by the patient herself. All these symptoms, if neglected, will gradually increase until the whole substance is out of the body, causing much pain and sometimes ulceration of the *os uteri*. From the friction of the clothes, likewise, the bladder, being connected with the uterus, (*vide Fig. 5.*) is also dragged down, producing such an angle with itself, as to stop the passage through the urethra.

There not being any muscles to prevent the descent of these ligaments, and consequently none to replace them ; the only relief in a *procidentia uteri*, is from the proper application and use of a well-formed pessary : but in slight cases, a restringent injection to brace the vagina, with much horizontal position, will often be of great benefit.

When the round ligaments partake of any disease by which the uterus is affected, pain is perceived at the ring of the abdominal muscles (through which the ligaments pass), and sometimes swellings are produced about the groins.

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*Figure 5.*

Outlines of the same UTERUS (*Fig. 4.*) with the addition of a section of the uterus unimpregnated, representing the shape of the external and internal parts, placed against that which is impregnated, by way of contrast.

A. FUNDUS UTERI, its size as in the third month of pregnancy.

B. B. CORPUS, or body.

C. C. CERVIX, or neck, of the impregnated and unimpregnated uterus. The dotted line which incloses these two letters C. C., represents the space to which the bladder is united by cellular membrane. The spots, exhibiting the blood-vessels as cut, are omitted here, in order to render that part more conspicuous.

D. Os TINCÆ (vel *os uteri*), is so called from its resemblance to the mouth of a tench.

E. E. Parts of the LIGAMENTA ROTUNDA, as coming from the uterus.

F. F. Parts of the TUBÆ FALLOPIANÆ.

a. FUNDUS UTERI, unimpregnated.

b. b. CORPUS.

c. c. CERVIX.

d. CAVITY of the UNIMPREGNATED UTERUS; being of a triangular form; the inner lining of which is perfectly smooth, soft, and vascular.

e. Cavity of the CERVIX UTERI. In this, the inner lining appears in short straight rugæ, or folds, passing upwards from a centre line, in a parallel and penniform direction.

f. f. At these angles, the Fallopian tubes enter the fundus uteri.



### Figure 6.

An ABORTION (from Dr. Hunter's gravid uterus, Tab. xxxiii.) of about eight or nine weeks. The decidua had been opened by a crucial incision, the four angles had been turned off, and then a round piece of the decidua reflexa dissected off, and turned to one side, to shew the loose vessels on the outside of the chorion.

#### LINES OF THE SAME, BY WAY OF REFERENCE.

A. The cut slip of the DECIDUA.

B. The part of the CONCEPTION where there is no decidua; *viz.* opposite to the passage through the cervix uteri.

C. C. C. C. The INSIDE of the four ANGLES or flaps into which the decidua was reduced by a crucial incision.

D. D. D. The DECIDUA REFLEXA, covering the other membranes.

E. E. The ANGLE, at the edge of the PLACENTA where the internal lamina of the decidua is continued over the outside of the chorion, forming the decidua reflexa.

F. A round portion of the DECIDUA REFLEXA, dissected from the outside of the chorion, and turned aside.

G. The CHORION, with the shaggy vessels, laid bare. These vessels adhered firmly to the decidua reflexa, and parts of them were cut off with that membrane.

---

*Figure 7.*

The same opened.

The membranes, which were at the fore-part, being cut from the placenta, and turned up, the embryo is distinctly seen.

A. The VESICULA UMBILICALIS, from which, B. the remains of an artery and vein, in the form of a white thread, pass to C.: the navel-string is conspicuous, but without any spiral course: this does not appear till about the third month.

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*Of the Vesicula Umbilicalis, (vesicula alba.)*

It has been observed by anatomists: "Between the chorion and amnion there is generally found, in the commencement of pregnancy, a small bladder, called *vesicula umbilicalis*, or *vesicula alba*, on account of its containing a white fluid. This lies on the concave surface of the placenta, about an inch from the insertion of the navel-string; and from it there may be traced a very fine white line, for a considerable way along the cord, and sometimes even to the navel itself. This line has been called the *urachus*, but very improperly; for although the fluid can be squeezed along it for a little way, yet it soon becomes quite impervious.

This vesicle has a small artery and vein, sent from the end of the cord to be distributed on it."

The use of the vesicula umbilicalis has not hitherto been discovered: though there is no part of the human frame but must have its peculiar office to fulfil, at one period or other of life.

==

*Figure 8.*

A CONCEPTION (from Dr. Hunter's gravid uterus, Tab. xxxiv.) supposed to be about five weeks, prepared by cutting away a considerable part of the chorion, and turning aside the amnion with the inclosed foetus, that the parts about the navel might be seen. It is considerably magnified, the better to exhibit the minute parts.

The shaggy floating vessels (as here seen, surrounding the whole) which shoot from the outer surface of the chorion, (being in vast abundance) require no explanation. These vessels, which happen to be united to the decidua where the ovum fixes in the uterus, are blended with those of the decidua, and form a part of the uterine placenta.

A. A. The space between the CHORION and AMNION. This was filled with a tender jelly, so transparent as to be almost invisible; whence the branching arteries and veins, filled with red blood, on the inside of the placenta, were distinctly seen through it.

B. The AMNION, distended with a liquor, transparent, and void of colour as the clearest water; through which the more delicate parts of the foetus might be distinctly viewed.

C. The VESICULA UMBILICALIS, distended with a fluid. It was neither attached to the amnion nor to the chorion; surrounded with the tender jelly; connected, as by a pedicle, to the navel of the foetus by an artery and a vein; which lie so close together, as to appear like one vessel filled with blood, and dispersing its branches on the vesicula umbilicalis alone.

The head of the foetus was longer than the trunk: the arms and legs had shot out but a little way: the abdominal viscera were not covered: the darker part of

these was the red liver : there being no navel-string, the foetus was attached at its abdomen to the inside of the amnion and of the chorion, which were contiguous at that place.

This foetus could not have been larger than a small bee ; but is magnified to the size represented, that its parts may be more conspicuous.

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## TABLE XV.

### *Figure 1.*

A PERPENDICULAR view of a perfect, well-formed PELVIS.

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### *Figure 2.*

Lines of the RIM of the same PELVIS, with the OS SACRUM, OS COCCYGIS, and the inferior parts of the ISCHIA. The straight dotted lines across the pelvis shew the different dimensions of the rim, with lines of reference.

*a. a. a. a. a. a.* The RIM of the PELVIS.

*b. b.* The INFERIOR PARTS of the ISCHIA, inclining inwards ; from the edge of which commences the superior aperture or entrance to the lower chamber.

*c. c. c.* Os SACRUM.

*d. d. d.* Os COCCYGIS.

*e. e.* SPINOUS PROCESSES of the ISCHIA.

Dr. Smellie observes, “ That, in all natural labours, the head presents with its long axis, in the long axis of the pelvis, (*videlicet*) the occiput to one side of the pelvis, and the face to the other.” The long axis of the head runs through the middle from the forehead to the occiput, or hind-head ; but the long axis of the pelvis does not pass directly through the middle or centre of the pelvis, but nearer to the sacrum, A. (*vide Fig. 2.*) than to the symphysis pubis, B., which is readily

seen by the line G. H., and therefore cannot be the best direction in which the head can descend ; because, when it so gets below the rim, it will lodge before the spines of the ischia, *e. e.* ; and it may not be possible for it to get any farther without being turned with the hand, or forceps, so as to give the long axis of the head the direction of the diagonal line E. F. ; after which, the face will pass into the hollow of the sacrum. This diagonal direction, E. F. shews the most favourable SITUATION in which the HEAD can present, as it will come clear of the spines of the ischia, so as not to lodge on them ; but the spines, so placed, prevent the head from coming too hastily down in a direct line, and cause it to take a circuitous course into the cavity of the sacrum. The distance from E. F. is greater than from C. D. ; and in this attitude the head is generally observed to present, in natural labours : (*vide TAB. I.*)

---

### Figure 3.

Lines of the bottom of the pelvis, (*vide TAB. XVII. Fig. 2.*) forming a kind of square, A. B. C. D. by the two sacro-sciatic ligaments on each side, C. B. and D. B. ; one from the tuberosities, and the other from the spines of the ischia, and both fixed into the os coccygis and sacrum, one on each side, spreading outwards ; and these ligaments, when the head of the child is coming down, will be stretched so as to make the circular distended line D. E. F. G. C. ; the os coccygis thereby receding at the same time, must lengthen the line A. B, which then will be the long axis, and therefore properly accommodating for the longest axis of the head to pass through the lower chamber with the face to the sacrum.

The depth of the os pubis, from the rim, being about two inches, the sacrum six inches, the tuberosities of the ischia four inches ; it may easily be known how far the head of the child is advanced into the pelvis : if a finger be passed up close behind the symphysis pubis, it will readily feel the rim of the pelvis, and discover whether the head be resting there, or how far it is down. If the finger be introduced horizontally close under the symphysis pubis, and it cannot be raised, the head then must be as low down as the bottom of the pubes, having advanced two inches below the superior aperture or rim ; and as the head still advances into the lower chamber, it must gradually take a

circuitous direction parallel with the curve of the sacrum; so that, when the occiput advances from under the symphysis pubis, the lower chamber is perfectly filled up, and the head will slip out with the pains through the os externum.

*Fig. 3.* presents an outline of the under (horizontal) part of the pelvis, termed by artists *fore-shortened*, nearly the reverse to *Fig. 1* and *2*, the rim or upper aperture appearing to the eye as the letters *a. a. a. a. a. a.*: the letter *A* (at the top) is the lower part of the front of the symphysis pubis, (marked *B* in *Fig. 2.*) as may be seen when compared with *Fig. 3*, *H. H.*, which (and TAB. XVI. *Fig. 2.*) is the hindmost part of the rim, and upper anterior part of the os sacrum: *b. b.* represent the two spines of the ischia; *F.* the termination of the os coccygis, appearing as when stretched backwards by the pressure of the child as it advances to the os externum; (*vide TAB. III.*)

—

*Figure 4.*

This repeats the lines of TAB. I. representing the LEFT SIDE of a section of the PELVIS, containing a child, as in the act of parturition; part of the body and cervix of the uterus being removed, to give a view of the head, &c. of the child, and the proper direction of the forceps.

A. A. The FORCEPS.

B. B. B. The LEFT and UNDERMOST PART of the VAGINA, greatly distended, as when relaxed by labour, and stretched by the head of the child and the forceps. (For the natural state of the Vagina, *vide TAB. XIV. Fig. 1 and 2.*)

d. d. d. The COAT of the VAGINA, uniting and terminating behind the os externum (os uteri), with the cervix uteri. The vagina and its coat, in some of the Tables, are coloured red, that they may more readily be distinguished from the uterus; the latter being coloured of a blueish or purple cast; but not necessarily.

C. The LEFT LABIUM PUDENDI, (labium externum, labium magnum,) which is here stretched, so as to appear only a continuation of the vagina; but the termi-

nation may be distinguished by the four small arched strokes representing the carunculæ myrtiformes (remains of the hymen), which are seated at the entrance of the vagina, denominated the Os Externum.

D. NYMPHÆ.

E. CLITORIS.

F. CORPUS CAVERNOSUM CLITORIDIS.

G. MEATUS URINARIUS.

H. URETHRA.

I. VESICA URINARIA; appearing as pushed forwards against the os pubis by the head of the child and uterus.

From not frequently passing of the urine in the early part of parturition, the bladder (as supposed) has been retroverted, filling up a part of the cavity or anterior part of the pelvis, and feeling to the touch as a large tumour, while, by the pressure of the membranes and foetus, the urine has been carried off by the urethra, and the bladder has recovered its tone and situation. But if such a tumour is perceived by the finger, and is supposed to proceed from obstructed urine, the sooner the catheter can be applied, the better; and the flattened catheter, or flexible male catheter, will be found the most convenient.

K. MONS VENERIS.

L. OSSA PUBIS; the anterior termination of the os pubis on the left side, next the symphysis, which, in the recent subject, is united to its fellow on the right side; (*vide TAB. XII.*)

M. INTESTINUM RECTUM. The sides, at the upper part and towards the anus, appear much compressed by the handle of the forceps, as likewise other contiguous soft parts. (For a more distinct view of the Rectum, *vide TAB. XIV. Fig. 1 and 2.*)

N. The ANUS.

O. The LEFT THIGH.

P. P. P. Part of the UTERUS, with its veins, appearing as when injected.

Q. Q. Q. The divided EDGE of the UTERUS, displaying its numerous blood-vessels as they appear when cut through.

R. R. R. Small portions of the INTESTINES; surrounding the uterus.

S. S. S. The CANAL, containing the medulla spinalis.

T. T. T. In this space are enclosed the MUSCLES, MEMBRANES, &c. externally by the common integuments, and internally by the vertebræ, with their spinal processes.

U. ANTERIOR INFERIOR PART of the ABDOMEN (cut through), and parts about the pubes, composed of skin, membrane, muscles, fat, &c.

W. W. EXTERNAL PARTS of the NATES (or buttock), podex, and rump.

X. X. The two EDGES of the divided OS EXTERNUM, OS UTERI (os tincæ), the extremity of the CERVIX UTERI, or mouth of the womb, projecting into the vagina; on the outside of which (when introducing the forceps over the head of the child) great caution should be observed, so as not to pass the ends of the blades.

Y. The PERINÆUM, pressed back against the rectum, &c. by the forceps, which are in their proper position, *viz.* parallel with the head of the child and axis of the pelvis. The space which the perinæum commonly occupies, may be seen, TAB. XIV. *Fig. 1.*

1. 2. 3. *Os Coccygis*, or rump-bone.

4. 5. 6. 7. 8. The *bones* of the *sacrum*.

9. 10. 11. Three *bones*, out of five, of the *lumbar spine*.

0. 0. 0. 0. 0. SPINAL PROCESSES.

*a. a.* SUTURA SAGITTALIS.

*b. b.* SUTURA CORONALIS.

*c.* The large (or anterior) FONTANELLE, having four points or corners; the lesser (or posterior) fontanelle has only three, (*vide* TAB. XIV. *Fig. 3.*)

The two fontanelles are so termed from the head of the child being void of bone in those parts, which are only covered by a membranous substance, and therefore understood as the anterior and posterior openings of the head.

## TABLE XVI.

*Figure 1.*

A section of the BONES of the PELVIS; being an inner view of the left side.

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*Figure 2.*

\_LINES of the same, and so placed as to be in the direction of the pelvis, TAB. I.; where its corresponding axis will be readily discerned by the straight dotted line O. P. This is the attitude of the pelvis when a person is standing erect.— The distances from Q. to T. (sacrum to pubes), C. to O. pubes and coccyx, and from O. to the rim of the pelvis, S. (represented by the double line,) are nearly equal.

A. B. C. D. The LEFT OS PUBIS (share-bone), near which the genital parts are chiefly placed; (and over its anterior part the mons veneris, with its hair; being a mark of puberty, from which the name is derived.) This bone, which is the anterior portion of the os innominatum, is the least of the three, and is distinguished into the body, angle, and ramus. The part named its crista, is a sharp ridge (which in some women is as thin as a small painter's palette) which marks the rim of the pelvis over the symphysis, rising higher than the other parts of the rim.

The body of the os pubis (being the outer part) joins the ilium and ischium, nearly where the letter A. is placed; and is distinguished by two curved lines (out of three) b. b. b. which form the superior-anterior part of the acetabulum, (the cotyloid cavity that receives the head of the os femoris); but, of the three bones, this is least concerned in the formation of the cavity.

The angle T. is the anterior termination of the os pubis, on the left side; which, in the perfect pelvis, joins the angle of its fellow directly opposite.

B. C. SYMPHYSIS PUBIS (anterior symphysis of the pelvis), or the lateral surface of the extremity of the left os pubis in front (as just observed), which, in the living subject, unites with its fellow on the opposite side, (TAB. XII.) by means

of the intervening cartilaginous, ligamentous substance, (very like that uniting the vertebrae called its symphysis). In TAB. XVII. *Fig. 1.* the uniting substance of the two ossa pubis is removed, to shew the space it in common occupies. This is supposed to be somewhat lax or pliable, a little previous to and during the time of labour, similarly to the posterior symphysis of the pelvis (parts uniting the sacrum to the ilium), which have, in some few instances, receded more or less during severe labour; and the symphysis pubis has even been known to separate at such times, and also on certain sudden exertions of the body; (vide *Medical Observations and Enquiries*, vol. ii. page 333.)

Where the irritation caused by such violence has produced inflammation and abscess, it is ever attended with distressing symptoms common to abscesses, which generally have proved fatal; the matter insinuating itself through the capsular ligament of the symphysis pubis under the periosteum, and passing into the acetabulum. Should a fluctuation of matter be perceived about the symphysis, an opening for its discharge may be of much benefit. In all cases, where these parts are affected with considerable pain during and after labour, the losing of blood from the arm (if the pulse will admit) may abate or prevent inflammation; together with a proper light nutriment, emollient fomentations, &c. Should a separation of these bones take place (unattended with any collection of matter), it will be the cause of great uneasiness and weakness in such parts, which may continue so for a considerable length of time before they unite. Here, resting in an horizontal position for many months (and perhaps years) is the chief remedy. But when it happens that the patient's occupation requires her to be somewhat about, after considerable rest, and she has not fully recovered strength, a well-contrived bandage passed round the pelvis, and so secured as to give some degree of firmness to the joints, and also to admit of sufficient motion, yet so as not to injure the parts, may be no small support; but where rest can be indulged in, (the longer the better) in an horizontal position, for a due length of time, it will be of the greatest utility; and in case of a general debility of habit, tonic medicines should not be omitted. The ossa pubis are smaller in women than in men, and are placed at a greater distance from each other (the symphysis being wider); while the arch, formed by the two rami of the ossa pubis and ischia, D. F. on the anterior and inferior part, is larger, to render more favourable the expulsion of the head of the child, at its birth. The upper edge of the os pubis (its crista) is generally turned a little outwards, by which means the uterus and the head, when presenting, rest with more ease, and during the time of labour enter the pelvis with less difficulty; and the

lower edge is in a small degree turned in the same direction, which contributes to facilitate the passage of the head out of the pelvis. But, where it happens that the part of the rim over the symphysis, which is called its crista, is somewhat higher than the rest, the edge of which, when formed, is remarkably sharp, and the pressure of the head of the child uncommonly great (notwithstanding the common covering to the bone, which possibly may also be thinner than usual), the uterus will be liable to be cut through, and the child to escape into the abdomen through the ruptured uterus ; the consequences of which have been previously treated of. This accident may also happen, from a partial irregular spasmodic action of the uterine fibres.

**D. RAMUS of the OSSA PUBIS ; forming part of its arch.**

**E. F. G. H.** The ischium, or seat-bone, (coxendix,) likewise called huckle or hip-bone. The inferior portion of the ossa innominata, placed perpendicularly under the ilium, is distinguished by the appellations of body, tuberosity, and ramus. It joins to the inferior part of the ilium and os pubis, marked by the lines *b. b.* forming more than a third part of the acetabulum ; making the middle and inferior part of each side of the pelvis. The centre, about where the letter E. is placed, is called its body ; it helps to form the acetabulum, and bears the greater proportion, as chiefly belonging to this bone.

**F. RAMUS ISCHII** is a flat thin process or apophysis, proceeding from the curvature of the tuberosity, ascending and joining to a similar but shorter process, which rises from the anterior or inferior part of the ossa pubis.

**G. Tuberosity of the ischium (tuber ischii) or obtuse process ;** which is very thick, and uneven : it is turned downwards, and is the part on which the body chiefly rests when sitting, and by some termed *os sedentarium* : but the os sacrum and coccyx, in very thin people, also receive a share of weight when they lean somewhat backwards. The tuber is nearly cartilaginous at birth, (*vide TAB. XVI. Fig. 3. and 4.*) and afterwards becomes an epiphysis.

**H. SPINE, or SPINOUS PROCESS of the ISCHIUM ;** a small apophysis, projecting backwards and inwards.

ISCHIATIC NOTCH, or sinus, (marked *d. d. d.*) ; the edge of the pelvis below, rising up and forming rather an acute angle with the lower part of the ilium. This is inclosed by strong ligaments which arise from the obtuse processes of the ischium, and pass to the posterior edges and apophyses of the sacrum, from which small portions are sent off to the os coccygis. These ligaments compose the broad or external sacro-sciatic ; (meaning such as pass from the sacrum to the ischium.) Others cross and adhere to those before mentioned, which pass to the inner and inferior edge of the sacrum and the upper part of the os coccygis : these also send small portions of ligaments to the edges of this bone throughout its whole extent, and are called the internal sacro-sciatic ligaments. These ligaments, when pressed against by the child, as it passes through the lower pelvis, form an arched extension, as represented by the dotted lines C. D. E. F. G. (TAB. XV. *Fig. 3.*) as before mentioned.

I. I. ILIUM, (or haunch-bone, forming the flank.) This bears the largest portion of the ossa innominata : it is articulated behind to the edge of the os sacrum, 4. 5. 6. 7. 8. near to its great angle *Q*, and continued down to the os coccygis (on each side of the sacrum), forming a broad, unequal, indented surface, united by a firm, intervening, cartilaginous, ligamentous substance, (sacro-iliac, or posterior symphysis.) These bones sometimes become ankylosed ; and, when (by the violence of labour) they have been separated, and not perfectly united, a lameness will ever after be the consequence ; and where matter happens to be discovered between the sacrum and ossa innominata, pointing outwards, so that an opening can be made to give it vent, it may be advisable ; as thereby a cure will be likely to follow.

The ilium is united to the os pubis before, by the curved line *b.*, and to the ischium below by another line, *b.* The superior part of this bone is thin, concave on the inner side, and convex on the posterior part : its inferior portion joins the os sacrum and ischium, forming a part of the ischiatic notch, *d. d. d.* The ilium is distinguished by its basis, alæ, spine (*crista*), or ridge, (its external and internal edge, termed *labrum*,) and its spinous processes. Its basis (so termed) is on the outer side, and nearly opposite to the letter *S*, being thick, but narrow, and forms a portion of the acetabulum, as marked by the line *b.* Its spine, meaning the whole circular edge of the wing, tipped with a thick ridge of firmer bone, *i. i. i. i. i.* ; which is also distinctly marked in several of the pelvises, and particularly so in

the infantile pelvis, *Fig. 2* and *3*; being there only cartilage, and, in the real subject from which these two figures were drawn, it appeared of a blueish cast, or tint, (preserved in spirit,) which gave it a beautiful appearance.

K. ANTERIOR-SUPERIOR SPINOUS PROCESS of the ILIUM.

L. ANTERIOR-INFERIOR SPINOUS PROCESS of the same.

The two posterior spinous processes are close by each other; which are two rough projecting points jutting out behind the articulation of the sacrum, for the insertion of ligaments to secure those parts from separating.

Its BASE may be seen at letter S.

M. M. OS SACRUM, (the (left half) internal anterior smooth surface,) called also *os basilare*, &c. It is supposed to have derived its name from its having been offered in sacrifice by the antients; or, perhaps, from its supporting the organs of generation, which they considered as sacred; or from its being the key or central connecting bone of the pelvis. This bone, with its appendix, the os coccygis, is called the false spine, or the collum of the false vertebræ; the true vertebræ (as termed by authors) are those of the back, neck, and loins. Close to the letter f. are marked, by short curved lines, the cavities or holes, through which the nerves pass from the medulla, to supply the contents of the pelvis and lower extremities; which holes are more clearly seen, TAB. XVII. *Fig. 2*.

4. 5. 6. 7. 8. The five *bones* of which it is composed in common; but sometimes six.

The uses of the os sacrum, are; 1. To serve as a basis to the spine: 2. To form the pelvis and secure the ossa innominata, and to defend the parts contained in them. 3. To secure in its sinus the lower part of the spinal marrow, or cauda equina. 4. To give passage, at its foramina, to the nerves of the intestinum rectum, the bladder, and the parts of generation, and to the large crural and ischiatic nerves: those all pass through its anterior foramina; the posterior ones have either absolutely nothing, or at the utmost only nerves so minute, as scarcely to be visible, passing through them. 5. It serves for the place or origin to many of the muscles.

The os sacrum forms the back part of the pelvis: its shape is somewhat triangular, and is usually about four inches in length and three broad, at the superior

part R.: its breadth, at the inferior end, is less than two inches. Its union to the lumbar vertebræ is similar to that of the rest of the vertebræ ; (termed sacro-vertebral articulation.)

In the infant state it is composed partly of bone and cartilage, (*vide Fig. 3. and 4.*) ; but in adults they grow close and firm, making but one large bone, leaving small ridges in the anterior surface, by which they may be traced.

The anterior or inner surface of the sacrum, with its covering, being remarkably smooth and concave, proves very accommodating, and facilitates the passage of the head of the child in time of labour : its convex outer surface is somewhat rough ; to which are united some muscles of the thigh and spine. It is not a compact bone, but rather of a cellular spongy texture.

N. The little angle (APEX) of the SACRUM, where it joins the os coccygis (sacro-coccygeal articulation), and there terminates the spine. This joining is remarked by anatomists, as moveable till the age of twenty-five in men, and forty-five in women. The great angle is marked by the letter Q.

1. 2. 3. Os coccygis (or rump-bone), derives its name from its resemblance to the beak of the cuckow. It is composed of three, and sometimes of four bones : its joint at the articulation with the os sacrum (in common) is moveable either a little backwards or forwards ; and in time of labour will recede by the pressure of the child, unless it happens to be ankylosed ; but in that case it is generally shortened and contracted to one side, and then not very liable to be any obstacle in labour : but if it should happen to project inwards, it may in some degree retard labour ; and it has been known to snap, with the force of pressure from the head of the child. These bones of the coccyx are very similar to those of the sacrum, except in having *foramina*.

O. APEX of the os coccygis ; is about the size of the point of the little finger. The os coccygis is of great use in supporting the intestinum rectum. In infants it is composed entirely of cartilage : in a short time it becomes bone ; and in the course of years, the moveable interposed cartilaginous joints become fixed and ossified, like the os sacrum, (as noticed.) The os coccygis is prevented from any lateral motion by the insertion of the coccygeal muscles, and of a part of the levatores ani, and of portions or slips of the sacro-sciatic ligaments into the sides

of the coccyx.—The ossa coccygis, in quadrupeds of many kinds, are long, and composed of a number of ossicula, which are bent outwards, and constitute the tail: in this case they are called the *ossa caudæ*. In the human subject it is short, bent inwards, and answers many purposes.

9. 10. 11. *Vertebræ lumborum*; here being only three bones out of five which compose the lumbar spine. The whole spine contains twenty-four bones, (*i. e.*) five lumbar, twelve dorsal (sometimes thirteen), and seven cervical. The first of the neck is called *atlas*; probably because it immediately supports the globe of the head: the next is the most remarkable, termed *dentatus*, or *axis*, from having an odontoid process upon which the first turns. There are twenty-four nerves branching out from the medulla on each side, through the vertebræ, to supply the different parts of the body.

P. The termination of the straight dotted line representing the AXIS of the UPPER CHAMBER of the PELVIS.

Q. The BASE, PROMONTORY, or great ANGLE of the OS SACRUM; formed by its union to the last vertebra lumborum; and is for the support of the superior spine, the latter projecting over the sacrum, making an obtuse angle. The base, or upper part of the sacrum, receives the last lumbar vertebra on a large broad surface, where there is greater motion than in any of the superior parts of the spine, excepting those of the neck, which are seven in number, and more simple, in their form like rings: their processes project but little.

R. S. T. RIM of the PELVIS (*linea innominata*), the left side, represented by a double line, forming a kind of ridge or spine, arising at T. (symphysis pubis): it passes obliquely upwards and backwards, and joins another spine formed on the inner surface of the inferior part of the ilium; which, running also backwards and upwards, joins the os sacrum a little below its great angle Q; and is continued all round in the same manner to the right side of the symphysis pubis, forming an irregular circle, (*vide TAB. XV. Fig. 1 and 2,*) which is understood to be the boundary of the rim of the pelvis, with its muscular, ligamentous, and peritonæal covering, which lines the whole pelvis. The rim is termed the superior aperture,

or entrance into the upper chamber of the pelvis. The internal aperture, or the beginning of the lower chamber, commences at the internal projection of the ischia, and their spinous process H., where the head of the child first begins to change its direction, occasioned by the two spines, (TAB. XV. *Fig. 1 and 2, e.e.*); and when the face gets into the hollow of the sacrum, as in TAB. II, it then is chiefly in the lower chamber:

Some authors have called the upper parts of the pelvis, above the rim, the *upper chamber* (meaning the superior parts of the ilium); which I have termed the bony expansion, or spacious avenue leading to the upper chamber. It is also a supporting reservoir for a certain portion of the intestines surrounded by the peritonæum: but during the greater part of gestation, the uterus chiefly occupies the lateral and anterior-superior parts, after rising above the rim; which then proves convenient for rest and ease to the uterus.

**U. FORAMEN MAGNUM ISCHII et PUBIS; foramen thyroïdæum vel ovale, (thyroïd hole).** The large hole, formed by the junction of the two last-mentioned bones, is completely filled up by ligaments and membranes of considerable strength, which pass through it, and from which arise the external and internal muscles called *obturatores*. Every part of the pelvis receives strength and support from all its surrounding muscles and ligaments; which also form, on its innermost part, a smooth compact surface of tendinous expansion, as appears in the fresh subject.

**a. a. a. a. ACETABULUM.** This oval dotted line, appearing on the inside of the pelvis, represents the situation of the acetabulum placed on the outside, (which is seen in the infantile pelvis, TAB. XVI. *Fig. 3 and 4*; but more clearly so in TAB. XII.)

**b. b. b.** Are three lines meeting in one point, shewing the division of the three bones, *ilium*, *ischium*, and *os pubis*; which divisions, on the external part, in the socket (*acetabulum*), are in about the same proportion.

**c. c. c. c.** This dotted line represents the **CENTRAL ARCH**, made by the head of the child in its passage through the pelvis; allowing for some little receding of the *os coccygis*.

**d. d. d.** *Ischiatic notch* (so called).

**e. e. e. e.** **POSTERIOR, (or sacro-iliac) SYMPHYSIS.**

*f.f.f.f.* At each of these letters, is a line, curved at each end; as a mark for the *foramina* or *holes* of the *sacrum* for the passage of the nerves; as previously observed.

*g.g.g.g.* *Intervertebral cartilages*, composed of a thin layer of cartilage, immediately and firmly united to the bones; the intermediate space being filled up with a ligamentous substance (or rather a substance between ligament and cartilage) sufficiently pliable for the lumbar and dorsal muscles to impart a degree of motion to the spine; yet this, if bent too forcibly, may even be separated or rent in the middle. This intervertebral substance, in the course of years, sometimes becomes so condensed by the weight of the superior parts, as to diminish the stature: and these bones have been even discovered ankylosed. The intervertebral substance, previous to old age, yielding to pressure, when in an erect position, in the course of the day is of so elastic a nature, as to render the person shorter at night by one inch: but this compression is retrieved by a night's horizontal position.

“ By external violence, the symphysis has been wrenched open, as was the case with Dr. Greene, (Phil. Trans. No. 484.) ; or the sacro-iliac junction may be separated, as in the case of the young peasant, related by M. Louis, (vide Mem. de P. Acad. de Chir. tome iv. p. 63.)

*h.h.h.h.h.* The *spinal processes* (cut through) of the *vertebræ lumborum* and *os sacrum*.

*i.i.i.i.i.* SPINE, or SUPERIOR MARGIN of the ILIUM.

*k.k.k.k.* The BONY CANAL, or *trunk*, parts of the VERTEBRAE, which help to secure the *medulla spinalis*, as described, (TAB. XV. Fig. 4.) and to be seen in most of the sections. The processes are covered and all the space between filled up by muscular, tendinous, and ligamentous substances. The medulla is surrounded and cased by the dura mater: each vertebra is composed of three principal processes; two lateral, and the other projecting backwards, and somewhat curved downward, making a ridge throughout the back: whence the term *spine*.

There is sometimes a defect in infants in some of the spinal processes, which are discovered unconnected and loose: whence, the medulla spinalis not being properly secured by these bones, an alarming and dangerous disease is occasioned, termed *spina bifida*; a tumour is discovered about the lower part of the dorsal, or the beginning of the lumbar vertebræ; sometimes as early as at the child's birth, at other times not so soon. The tumour is always filled with a fluid. From

friction of the child's clothes, or some other cause, the part may inflame and the common integuments slough off; sometimes only an oozing is perceived through a small crack in the skin: in this state nothing more than some soft kind of dressings is necessary, leaving the rest chiefly to nature. It now and then happens that one or more of the spinal processes may be deficient, even throughout the whole sacrum: in consequence of this want of bone, a tumour is formed, distended with a fluid, and sometimes rising to a considerable size. Very few survive the age of two or three years; and a paralysis of the lower limbs is not uncommon. Death is generally the immediate consequence of a rupture of this tumour: the medulla stops at the commencement of the tumour, but sometimes there are small nerves ramifying below it, from the surface of the cyst, to supply the inferior part of the body.

The late Mr. Watson, in his Anatomical and Chirurgical Lectures (at Guy's Hospital), related a case of this kind, where the person lived to adult age; but was of a heavy inactive disposition. When the tumour was gently pressed with the hand, it gave him spirits: but when pressed very hard, it would make him like a mad man.

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*Figure 3.*

A front view of a FEMALE PELVIS, as at the day of birth: (natural size). This was drawn by myself from a real pelvis, very neatly prepared by Mr. Clift, Conservator of the Museum of the College of Surgeons, London.—All the parts of this pelvis which are coloured blue (the appearance they assumed in the original) represent cartilage; and this gradually becomes bone. It may hence be conceived that the whole frame bears a like proportion, until completely ossified: which may account for the pliability of many parts of the child during labour.

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*Figure 4.*

A lateral view of the same PELVIS.

In this early, cartilaginous state, the ossa coccygis appear somewhat rounded, but as the ossification advances, they become more flat.

The diameters of the rim of the foetal pelvis are different from those of the adult pelvis, being reversed: the long diameter of the rim in the infant being from sacrum to pubes; but the shape gradually alters, so that at about the age of puberty, the rim is more circular, and when fully perfected, it again partakes of the oval form; but the distance from pubes to sacrum is then the shortest. This accounts for the difficulty which may occur during parturition in very early life.

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## TABLE XVII.

### *Figure 1.*

A FRONT view of a perfect FEMALE PELVIS. The ligamentous substance which unites the ossa pubis (called symphysis) being removed, thereby is seen the space which it occupies.

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### *Figure 2.*

HORIZONTAL VIEW of the same; (*vide* Outlines, with references, TAB. XV. Fig. 3.)

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### *Figure 3.*

FRONT VIEW of a PELVIS somewhat distorted.

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### *Figure 4.*

HORIZONTAL VIEW of the same.

When the deformity of the bones is not more than these pelvises represent, and the head of the child of a moderate size, and not uncommonly ossified, it may be possible for the head to pass by labour-pains; but if not, the forceps or vectis may be applied with success, if judiciously managed.

*Some general Observations on the Pelvis.*

The PELVIS, in its shape, situation, and use in supporting the intestines, uterus, bladder, &c. in the human subject, bears some resemblance to a basin (in Latin, *pelvis*) : its shape is admirably calculated for preventing the child from passing too hastily, and for obviating other inconveniences to which the erect position of the human species would otherwise be liable.

The direction of the pelvis, in quadrupeds, is very different ; being placed horizontally ; and therefore the more capacious, the less difficulty and danger in bringing forth their young.

The pelvis is the centre arch of the whole fabric in the human body ; the superior parts resting upon it, and the inferior articulate with, and play against its more depending parts ; and thereby the machine is rendered moveable.

The bones of the pelvis being of a complex construction, and the only bones immediately concerned in the act of parturition, claim the attention of all medical men, but particularly of those who practise Midwifery ; as, without a proper knowledge of them, no one can be so competent a judge how to act in difficult cases, or under particular circumstances.

The pelvis may be properly divided into two cavities, or chambers, the *upper* and the *lower*. The axis of the upper pelvis differs from the lower : the dotted line O.P., TAB. XVI. *Fig. 2*, from the apex of the os coccygis to the scrobiculus cordis (that part between the navel and the pit of the stomach), represents the axis of the upper pelvis, and the part toward which the forceps ought to be directed, when only half the head of the child has entered the rim, for reasons mentioned in the preceding cases, when the forceps ought to be applied. But when the head gets lower down, so as to be chiefly in the lower pelvis, the axis varies ; the forceps will then take a different direction, and continue changing as the head of the child advances, in the direction of the central curved dotted line *c. c. c. c.* TAB. XVI. until the face gets into the cavity of the sacrum, the head lying then in the lower chamber of the pelvis, as seen, TAB. II.

The perfect pelvis is found of various sizes in different women : from the rim, the depth varies in some of its parts. It is from four and a half to five or six inches behind down to the coccyx, from two and a half to three inches at the

sides to the lower edge of the ischium, and one and a half or two inches deep at the symphysis pubis. Each aperture of the pelvis has two diameters, a long and a short; in the upper aperture the long diameter is from side to side, and the short from pubes to sacrum, as is demonstrated in TAB. XV. *Fig. 2.* The lower aperture may be considered as oviform; the long diameter is from sacrum to pubes; the short, from ischium to ischium, (*vide TAB. XV. Fig. 3.*); which proves that the diameters of the upper and lower chambers are reversed.

Pelvises in common (well formed) are seldom wider than five inches and a half from one side of the rim to the other, and about four and a quarter, or four and a half, from the base of the sacrum to the symphysis pubis; but sometimes they will be found much wider. It is reckoned an imperfection in men to have a wide pelvis: on the contrary, this is deemed a perfection in women; yet if too wide in proportion to the size of the head of the child, it may be attended with inconvenience, as the child may pass so hastily, under certain circumstances, during parturition, as even to be fatal to its life, in case of dropping on the floor, &c., meeting with but little resistance in the pelvis, &c. The soft parts insensibly relax previously to and during labour, preparing the passage for the exit of the child: also in uncommonly large pelvises, the uterus will be more liable to prolapsus, inversion, and retroversion; which last sometimes happens between the third and fourth month of pregnancy, from suffering too great a quantity of urine to remain in the bladder; as previously remarked.

The pelvis is composed of the os sacrum, os coccygis, and the two ossa innomina (or nameless bones); which latter are two large bones uniting behind on each side to the sacrum, by a firm cartilaginous and ligamentous substance: which union by this intervening substance, is termed *sacro-iliac* or *posterior symphysis*; the anterior symphysis being at the union of the ossa pubis (*symphysis pubis*). In infants, the ossa innominata are composed of three distinct bones on each side, ilium, ischium, and os pubis; (*vide TAB. XVI. Fig. 2 and 3:*) but about the age of puberty, or soon after, these lines gradually disappear, and become so firmly united into one bone on each side as not to be traced; are consequently deprived of their original names, and hence termed *ossa innominata*. But their united parts having been once ascertained, they still claim their respective proportion; the demonstration of which is essential to the art of Midwifery, when treating of the pelvis.

The pelvis is originally composed of eight bones, which, in adults, are reduced

to four. It has been ascertained by anatomists, that although the position of the pelvis, in the human subject, is always the same, it is found varying in brutes, even in the same species. In those that are swift, the position of the pelvis is nearly horizontal, and the two apertures nearly perpendicular: in such as are possessed of the greatest strength, the pelvis is nearly perpendicular, and the two apertures of the cavity horizontal: in others, of the mixed breed, combining speed and strength, the pelvis takes an intermediate direction, inclining in proportion to the creature's activity and power. Other parts of different animals also vary in their attitude and formation; such as the shoulders, chest, &c. in proportion to their agility and strength.

In the recent human subject the pelvis is discovered lined with the periosteum, muscles, tendons, cartilages, membranes, and cellular substance. Internally, it is covered chiefly with the psoas, iliacus internus, tricipital, pyramidal, and glutæi; the peritonæum, the abdominal muscles, and common integuments, defend it before; and the bottom is closed by the ligamenta sacro-sciatica, musculi coccygæi, the integuments of the perinæum, lower part of the rectum, and its sphincter. The nerves supplying these parts are, the obturator, the anterior and posterior crural, those of the sacrum, and the blood-vessels from the iliacs.

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## TABLE XVIII.

### Figure 1.

A VIEW of a very remarkable DEFORMED PELVIS, occasioned by that disease of the bones termed *mollities ossium, (osteo-sarcosis, malacosteon)*; where the Cæsarean section or hysterotomy was performed by the late Mr. Hunter, (then of St. George's Hospital,) August 13, 1774, on the body of Mrs. Elizabeth Foster, aged thirty-six years. She did not survive the operation more than twenty-six hours; the child was preserved alive. The particulars of the operation, &c. are mentioned in the London Medical Observations and Enquiries, Vol. V; page 217, published in 1776. Not having been able to procure the real pelvis, I made a

drawing from a model in plaster, the mould of which was executed by Giannelli from the real pelvis, then in the possession of the late Dr. Cooper.

It must be readily conceived that a child could not pass through the pelvis, by reason of its contracted shape. The distance from the nearest projecting part of the spine, *e.* (lumbar vertebrae) to the part where the pubes and ilium unite (*a.*) on the right side, measured only one inch; and that on the left (*b.*) one inch and three-eighths. From the internal distorted (bent-in) point of the os pubis, *c.* on the right side, to the centre of the vertebrae (*e.*) one inch and three-eighths; and between the same on the left side (*d.*) one inch and a half. The distance from the two bent-in parts of the ossa pubis, *c. d.* only a quarter of an inch.

“ Upon a careful examination during a pain, I found the *os tincæ* thin, yielding, and dilated to nearly the bigness of a shilling. The *liquor amnii* had come away about an hour, and the head of the child was just perceived to the touch; but the pelvis appeared to me so extremely narrow and ill-formed, as not to admit of a possibility for the child to be delivered even by *embryulcia*; the Cæsarean operation seemed therefore the only alternative. She was married April 16, 1759: at this time she enjoyed a tolerably good state of health. Previous to the operation she had miscarried more than once, and borne many children; but in the two last labours, the head of the child was obliged to be reduced before delivery could be accomplished. Latterly her indisposition (which she attributed to a severe cold, contracted by going into a damp house recently repaired) was accompanied with a violent rheumatic fever, which continued about six weeks; and from that unhappy period she dated the commencement of her extreme weakness and deformity of body.

“ There was nothing particular in her general diet, except that she abstained from eating cheese, fish, and fruit; she used a great deal of salt, but very little acids. The pelvis being very singular, had very little of the cretaceous matter in the substance of the bones; on which account they were so extremely soft and spongy, when fresh, that a finger might very easily have been pressed through most parts of them, and there was no difficulty in cutting them with a knife; but when perfectly dried, their substance became considerably firmer.

“ This disease (*mollities ossium*) had diminished her stature. At the time she married, she was perfectly straight, very thin, and measured five feet four inches in height; some months before her death she measured only four feet four inches, and she stooped so much latterly as to appear to be little more than three feet

high. Mrs. Elizabeth Foster was born November 25, 1738: during her infancy she was of a very weak habit of body, but never attacked with rickets. As she grew up, she still retained rather a feeble constitution, but a great share of natural spirits and vivacity; a uniform pattern of temperance and sobriety.

“ The lower extremities were not at all bent, probably through her inability to make much use of them since her violent rheumatic fever; so that the diminution of her stature must alone depend upon the various distortions of the spine and pelvis.”

Wherever the greatest weight happens to be applied, that part yields first, in diseased bones; and as the superior part of the body bears on the lower lumbar vertebræ, the os sacrum, as the key to the arch of the pelvis, sinking gradually inwards, will sometimes totally obstruct the passage of the child through the pelvis. Those who suffer from mollities ossium are generally unable to be on their feet; which obliges them to sit chiefly: whence other impressions and deformities follow; the lower part of the os sacrum gives way, and is pushed forwards; the thigh-bones approach nearer each other, towards the centre of gravity; the ossa pubis, sometimes, almost meet throughout their whole length, (as seen in this pelvis, *c. d.*); which causes its cavity to be nearly plugged up.

The bones are also liable to an opposite disease, termed *friabilitas*; which sometimes happens to aged persons, where the bones are fractured even on very slight exertions.

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*Figure 2.*

A view of another **DEFORMED PELVIS**, which I drew from a model executed by Giannelli from the real pelvis. This was taken out of the body of Mary Rhodes, aged twenty-three years, on whom the Cæsarean operation had been performed by Mr. Thomson, surgeon to the London Hospital, October 21, 1769. She expired five hours after the operation. The child was taken from the uterus alive (*vide* London Medical Observations and Enquiries, published 1771, vol. iv.) in which the particulars of all the symptoms previous to and at the operation are related; with two separate engravings of the pelvis: but that which I have introduced

into this Work is different from either, exhibiting more of a front view. This pelvis is not deformed like the other, nor from the same cause: but although the symphysis pubis was not bent, "it was so close to the vertebræ, as not to admit much more than a finger."

The particulars of Mr. Thomson's description are here subjoined.—"The distance between the symphysis pubis (*a.*) and the projection of the sacrum (*b.*) measured only seven-eighths of an inch; (but that part in the model measured somewhat more). From the termination of the os coccygis (*c.*) to the lower part of the symphysis pubis (*d.*) in the model, is one inch and seven-eighths."

Dr. Cooper observes: "Martha Rhodes was much deformed, being only about four feet four inches high; her back very hollow, her hips narrow, and lower extremities crooked; was married in October 1768, and miscarried the Christmas following. She became soon afterwards a second time pregnant, and was attacked with labour-pains on Friday morning, October 20, 1769; about the time her reckoning expired. Upon introducing a finger into the vagina, the first thing which presented itself to the touch was an unusual projection of the os sacrum and inferior lumbar vertebræ; which being extremely prominent, had very much the feel of a child's head. This protuberance approached so near to the symphysis pubis, that only one finger could be passed between them."

By comparing these pelvises with the perfect well-formed pelvis, TAB. XVII. *Fig. 1*, the difference will be instantly seen.

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*Figure 3.*

"The SKELETON of *Madame SUPIOT*, communicated by Mons. Suê, first surgeon to the hospital La Charité, at Paris, to the late Mr. Broomfield, surgeon in London. She died April 7, 1751, after several years indisposition, attended at times with most excruciating pains. The disease (*mollities ossium*) was supposed to be occasioned by her eating a pound or more of common salt in a week, without any vehicle, for some time before she was seized with her disorder; which custom she continued for two years."

*Figure 4.*

The EXTERNAL FIGURE of the same person.

Amongst a variety of objects, who have died of the mollities ossium, I have selected *Madame Supiot*, as a fit subject to illustrate this dreadful malady, copied from an engraving inserted by the late Mr. William Broomfield (in his chirurgical work published in 1773), surgeon to the Queen's Household, and to St. George's Hospital, London.

Mrs. *Elizabeth Foster's* deformity (*Fig. 1.*) originated from the same cause, and must be a convincing proof to the young student, that the human frame is liable to such disease.

The real cause of mollities ossium is not perfectly ascertained, and (melancholy to relate!) no remedy has been discovered to prevent, or mitigate its ravages. From the appearance of the bones so softened and deranged, they no doubt are deprived of that earthly ossific matter necessary to produce firmness, but the animal substance still remains. The bony particles having been again disseminated through the circulation, are conveyed out of the body by the different emunctories. But previously to this, the juices of the body are supposed to be vitiated: there must have been a change in the cretaceous part of the bone by some decomposing principle, so as to render such particles fit for re-absorption. And when it can be discovered what this cause proceeds from, then relief may be expected.

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*Observations on the Distorted Pelvis.*

THE female pelvis is much more susceptible of injuries from pressures, than the male; being more wide and shallow in its cavity, and the bones more slender than in the male, to render it conducive to the easy passage of the child. A distorted female pelvis is liable to be attended with most alarming consequences; and this induces me to be the more particular in describing the mode of relieving or preventing the same in infants.

There are two general causes for diseased bones in children: the one, and to which children very early are liable, is termed *rachites* (or rickets); the other, a

malady which may occur at any period of life, is termed *mollities ossium* (a softness of the bones). From either of these, the pelvis is liable to become deformed.

Infants, from a want of proper nutritious food, cleanliness, and exercise ; living in damp air ; suckled by unhealthy parents or nurses ; acquire a lax fibre and impure juices, abounding too much with acidities ; and hence reduced by a continued diarrhoea, &c. become liable to the rachites.

This is a complaint too well known to require demonstration. The mode of treatment must be regulated in a great measure by the cause of the disease. If from a defect in nursing, unwholesome air, want of exercise, &c. ; here a total change must take place, before relief can be given. If the child has imbibed from the parent, or nurse, any particular disease ; that must first of all be attended to. In general, the mesenteric glands will be found early obstructed, so that the lacteals cannot perform their office of conveying sufficient and proper nourishment to the blood ; in this case, purges of calomel (hydrargyri submuriæ) ought to be administered, to cleanse the primæ viæ, and relieve obstructions ; after which, mild mercurial alteratives, such as hydrargyrus cum cretâ, &c. with rhubarb occasionally to keep the bowels properly open, and prevent the mouth from being affected. When the glandular system is sufficiently relieved, then, and not till then, the cold-bath may be of great benefit, together with tonic medicines, such as a weak infusion of bark, &c.

To be freed from the disorder (rickets) as early as possible is of the utmost consequence to female children ; for, when once the bones of the pelvis (before they have acquired their due firmness) give way to pressure and counter-pressure, by the weight of the body downwards, and from the bones of the thighs upwards, (originating from some defect of the habit,) they can never be remedied, even if health return ; but are liable to get worse. Other parts, such as the legs and joints, by proper application of bandage and instruments, may be greatly relieved. When the rachites is suffered to continue without proper aid, not only the bones become deformed and the joints enlarged, but the head is oftentimes greatly distended ; as likewise the liver and every other viscus. The wrists and ankles are generally perceived to swell first, then the back alters in shape, and the breast protrudes. To prevent this is a duty due from parents and nurses ; and when the disease begins to make its appearance, they ought, religiously, to do all in their power to assist in subduing it.

The less a rickety child sits, the better ; and it should never be suffered to sit

upon any thing hard. In children so afflicted the pelvis is sure to be the first part to receive the impression of deformity, by reason of the pressure and counter-pressure, as just mentioned. When the child is carried out for air, one arm of the nurse should be placed under the arms of the child, and the other round and under its knees: but it would be better if it were slung on a piece of gauze or crape, in order to avoid as much as possible any partial pressure on the pelvis: this is a principal object; because the heat and pressure from the arms of the nurse are alike unfavourable. A child had better be left to roll on something soft, than dandled upon the knee for any length of time: and less injury would ensue to the pelvis by laying the child across the lap, with its face downwards.

To prevent pending mischief, and to eradicate disease, is the Physician's great object.—When the child reclines on its bed, it should be placed on an elastic mattress (no feather-bed), and must lie on its back, with the shoulders not higher than the breech, so that the whole back may have its equal share of pressure.

When the child is able to walk, it ought not to be suffered to bear with its whole weight upon the feet at first; leading-strings (so called) affixed to the upper part of its clothing, or placed under the arms by way of support, will prevent too much pressure upwards from the head of the thigh-bones. A tender child should never be carried abroad in very cold or damp weather; and its clothing ought at all times to be sufficient to ward off the effects of cold air; and, when in the open air, should be kept in constant motion: for, by the imprudence of nurses, who too often sit down, or loiter in a current of air, children are rendered liable to incipient colds and fevers, which will reduce and derange the habit, and bring on the very disease, which the cautions here laid down, if well regarded, might have prevented.

The best, as well as the most pleasant exercise for children, is that of swinging, but more especially for the rickety child. For this purpose a boat-like machine is the best contrivance: this should be made of the wicker of which baskets are formed, open, like net-work, and arched over with the same kind of material, to prevent the child's being thrown out; and some light covering fastened by tapes to the sides of the machine, immediately over the child, in order to keep it steady; and at the bottom is to be placed a soft mattress, on which the child should be laid supine, its head a little elevated.

This kind of exercise (swinging) is next in advantage to that of sailing; as, from the force of air, or rather the being forced against air, produces a very

pleasing as well as useful sensation: and in case of hectic, feverish indisposition, it will even reduce the pulse (in grown persons), occasion it to beat less quickly, and prove refreshing, if not continued too long at a time.

If (professionally speaking) we cannot always remove a disease, it is our duty to prescribe every means which we think may tend to mitigate it in its early stage, and to prevent that mischief which may follow, in cases of pregnancy; at which time no relief can be administered. There is not any thing in life more deplorable, or more to be commiserated, than those miserable objects, who, when going to the full time of gestation (the child being of its usual and natural size), have the pelvis so contracted, that no possible means can be devised to preserve the life of the child (or to extract it in any manner) but by the Cæsarean section; which has almost invariably proved fatal to the mother.

Whenever a child is afflicted with the rickets, there is generally too much reason to suspect the pelvis will be deformed and contracted, particularly if the lower extremities have suffered; but the more care used to prevent it, the less will be the deformity, and the greater merit due to the nurse; and as health returns, the bones will acquire a firmer texture.

Poor people, in the country, who have not always time to attend to their infant children, leave them on the floor to roll about; but when they are somewhat able to walk, they have a contrivance, which is called a *runner*, made of tapes fastened to the upper part of their clothing; like those called leading-strings, only much longer, so as to reach up to a beam in the ceiling, to which a pulley is attached in such a way that the tapes or leading-strings are affixed thereto, so as to give them free play either backwards or forwards: the child thus going from one chair to another, where little toys or trinkets are placed for its amusement. These tapes, or leading-strings, are of just sufficient length to prevent the whole weight of the body resting on the feet; if the toes can touch the ground, it is enough.

The rickets are seldom supposed to happen before the birth of the child, and rarely attack children previously to the ninth month, or after two years from the birth: the sooner it commences after birth, the more obstinate; and if it continue until about the fifth year, there are very little hopes then of a cure: it sometimes terminates in hydrocephalus, hectic fever, or convulsions, and proves fatal. It is a very old observation, That if a child can talk before it is able to walk, there is a disposition to the rachites; (the mind being oftentimes prematurely advanced, in very

delicate children). In case of deformity of the spine, and not early attended to, a caries of the bones may be the consequence; a disease termed *spina ventosa*.

Boerhääve remarks: the first appearance of the rickets in Britain was about the middle of the sixteenth century, when this disease was first discovered; then through all Germany and the northern parts of Europe.

It has been observed, that distorted pelvises are frequently met with in Holland.

If the vertebræ of the back become deformed after a person's attaining the age of puberty, without the disease *mollities ossium*; that is no proof of the pelvis being deformed. This may happen from leaning too much on one side, with some constant employ, such as tambour-work, quilting, carrying a heavy child on one arm, or from pain in either side, which gives her a disposition to incline towards that side, to procure ease. There are many instances of deformity in the back, without occasioning any impediment to the birth of the child. But where the lower extremities are deformed, the pelvis is ever to be suspected as being deformed also; and in women whose stature does not much exceed three feet, there can be but little doubt (at first sight) that the pelvis is deformed.

There is no difficulty in determining the dimensions of the pelvis by the fingers in the vagina, but not so readily the size of the child's head in the uterus.—When the head of a child at birth measures, from one parietal bone to the other (being the narrowest diameter), from three inches and a half to four inches or upwards, the head, at its full time, will not bear to be compressed to a less size than three inches from one temple to the other, with safety to the child's life. Therefore, in a distorted pelvis, where the bones approach much nearer than three inches, the child is not likely to be brought forth alive by any means, with safety to the mother, unless by the hands of an Accoucheur well versed in the application of the forceps. Should the head be opened when the distance from the pubes to the sacrum is only two inches and three quarters, it possibly may be delivered afterwards by labour-pains; but if only about two inches, it then must be extracted by the crotchet. But *cephalotomy* ought not always to be performed in an early stage of labour.

It has been observed by authors: "The sooner the head is opened, when required, the better; putrefaction coming on, will soften all the parts of the child (excepting bone); the discharge of the contents of the head and loss of blood will lessen its bulk. If the smallest distance in the pelvis be only an inch and a half, and the head be opened twenty-four or thirty hours, before any attempt is made

to extract it, the better: opening the head under these circumstances, at the beginning of labour, must have its advantage, for the safety of the mother; otherwise her strength may be exhausted: if so, the delivery must be expedited as much as possible.

After the frontal, parietal, temporal, and occipital bones are removed by means of the perforator, which is also used as pliers, the crotchet is to be fixed on the basis of the cranium (not on the outer parts), whilst one hand is in the vagina (which should be, during the whole operation), to direct the crotchet, &c. and to prevent injury to the rectum, vagina, &c. Where the pelvis is so exceedingly contracted, the perforator must be passed through the cranium, if a fontanelle does not present, and the brain scooped out with a spoon, &c.

When the pelvis is known to be distorted to a considerable degree, so that a child at its full time would endanger the life of the mother, and certainly could not be delivered alive; under such circumstances, it may be adviseable to attempt premature delivery at about the sixth or seventh month, as at that age it may be possible for the child to pass, be born alive, and reared to maturity; (as formerly noticed).

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### TABLE XIX.

THIS is by way of substitute for the HEAD of a child. By means of a string it is to be gathered up, and so secured, for the application of the forceps or vectis.

Being introduced under the thigh (TAB. I), between the duplicature of paper there placed (to prevent injuring the print), the vertex downwards, the real forceps or vectis may be readily applied, according to the rules previously laid down. The ears being formed of thin leather, the alæ of which will be perceived, by introducing the finger under the thigh, the direction of the face will thereby be ascertained, and, consequently, which way to turn the head; so that the face may be placed into the hollow of the sacrum, whether to the right or left, which is very essential for the safety of the child, and success to the operation, and therefore ought ever to be carefully attended to.

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## APPENDIX.

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### CASE OF MRS. PHILLIPS.

(FROM THE MEDICAL AND PHYSICAL JOURNAL FOR SEPTEMBER, 1802.)

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*To the Editors of the Medical and Physical Journal.*

GENTLEMEN;

SHOULD you think the following paper worthy of insertion in your extensive and very useful publication, it is at your service.

It contains the case of a lady, who, being between three and four months advanced in pregnancy, (although the membranes broke, and the waters discharged,) yet went the full time of gestation.

Mrs. Phillips, about forty years of age, of middle stature and active disposition, having been ill several weeks with colds, inflamed glands about the neck and throat, cough, and much loss of appetite, which had reduced and weakened her greatly; being alarmed in the evening of November 10, 1801, by the falling of an iron bar belonging to a window close under where she was in bed, was seized with such violent spasmodic efforts, as to occasion the rupture of the membranes surrounding the child. The next morning, being desired to attend, I was informed there had been a discharge of waters, accompanied with pain. On examining, the os internum appeared closed, but descended; and the os externum somewhat relaxed.

November 17th. This being the eighth day, the discharge and pains continued, but with short intermission, until the last twenty-four hours, having been free from both during that time; since which, the waters had discharged in much smaller quantities, and the motion of the child was almost imperceptible. Since the rupture of the membranes, the discharge of waters was so copious, as for several times to run through sixteen folds of blankets and the bed, to the floor; by which the patient became so much reduced in size, as not to appear in a state of pregnancy; although, before the accident, she seemed much larger than usual at that stage of gestation. Being importuned yesterday, November 16th, to eat a bit of boiled haddock, it so disordered her stomach and whole frame, as nearly to have proved fatal.—This observation is only to shew, with what caution even light solids, and in small quantities, should be allowed, when there is a general debility with indisposition; even should there be an inclination to food without the power to digest it: and more particularly at such times when the nervous sys-

tem has received a severe shock ; for then the stomach is ever inclined to be affected from sympathy, rendered exceedingly irritable, and incapable of performing its office ; consequently, liquid nutriment is all nature requires under such circumstances.

Nov. 20th. The eleventh day, I examined again, and perceived the os uteri to be lower down, nearly touching the os externum, but not open or soft ; the pains returning frequently, attended with a discharge of waters and a bearing-down at times still, as if the womb was *forcing from her*, (as she expressed). Being now exceedingly languid, she was under the necessity of taking frequently wine and water, broth, beef-tea, &c. to support nature ; and yet she was with some difficulty kept from fainting.

My patient and her friends now were much alarmed, and begged of me to relieve her from her deplorable state, by assisting the delivery of the child, which they concluded was necessary to save the mother's life, and the sooner the better. My reply was, that I could not be justified in hastening the delivery ; in so doing, the child would be destroyed, and I could not answer for the mother in her present state of health. I encouraged her by every means to have patience ; and I assured her all would terminate favourably in due time. Previous to her fright, she had been taking balsamic anodyne medicines, and using gargles ; as the mucus discharged from the glands about the throat was uncommonly viscid, and adhered so much to the oesophagus and epiglottis, that she was under the greatest apprehensions of being suffocated. The pulse, during her long indisposition, has indicated but little fever. (The opium, &c. were still continued.)

21st. The os externum was more lax ; the os uteri continued closed, and not soft ; the motion of the child was perceived.

22d. Had a better night ; more sleep, but frequent pains ; and the waters continued discharging. The child now appeared to the mother to become more languid.

23d. She had a pretty good night, less pain, and was able to sit up ; her pulse is good, and her cough better.

25th. She had a tolerable night, but the pains and bearing-down increased, occasioned by some surprise ; she was out of bed, and rather cheerful.

27th. She had again a restless night, much pain and bearing-down ; so violent, that the expulsion of the foetus was expected every moment, but no waters were discharged. The child again appeared weaker, its motion a sort of fluttering. She is much better in health, takes light nourishment, and is out of bed some hours in the day.

28th. Had a better night ; more sleep, less pain ; some discharge, resembling the whites.

30th. Again had a very restless night ; and pains, accompanied with a discharge of waters, thicker in consistence at times. On examining, I found the os internum soft, and a little open, but not enough to introduce the point of a finger ; the neck of the uterus seemed distended quite to the mouth, and its contents resting close over it. The os externum continues very lax.

December 1st. She slept better ; the pains are moderate.

3d. There was a more copious discharge of waters in the night, attended with forcing pains ; yet she slept more, but felt herself this morning very weak and low. She perceives the motion of the child to be stronger, pressing upwards against the stomach, which in some degree affects her respiration, and makes her appear to herself as if she was fuller and enlarged. Eleven o'clock at night, I examined again, and found the os internum much higher, closed, not soft, and the uterus contracted. She has been out of bed more to-day than usual ; the pains trifling, but the waters were constantly draining off.

5th. The waters continued discharging ; the child was perceived stronger, and much agitated ;

sometimes it seemed to her pressing against the stomach ; at others to be forcing downwards, but the pains moderate.

6th. An exceedingly restless night ; discharge of waters, with bearing-down pains.

7th. No sleep all night ; bearing-down pains, the waters discharging at the same time rather thicker, and of a brown yellow colour ; the child is perceived to move at times.

8th. By taking more opium last night, she slept better ; but the discharge as usual.

9th. This morning the child was perceived lower down ; its motion less ; the discharge thicker, but not so much of the yellow cast.—Eleven o'clock at night ; has been out of bed the greatest part of the day ; the pains this day have been but few and moderate, without any bearing-down. The child continues to be low down, and weighty ; its motion but little, and the discharge less ; her health and spirits, on the whole, better.

11th. Continues much better in health ; up the greatest part of the day ; very little discharge, and that not very thin. The child moved but seldom, but it then gave pain, and at times a bearing-down, as if something had been coming away.

12th. She was able to walk about the room ; felt much stronger ; the child moved but seldom. Had, in the course of the day, two or three violent pains in the back like cramp, (supposed to have taken cold) : the discharge not much, but thicker, and of a brown yellow cast.

13th. The violent pains in the back were this day somewhat abated ; and the child moved very gently (with a kind of fluttering motion) ; the discharge yellowish.

14th. She had a restless night ; some waters discharged, with pains ; the child moved stronger, and occasioned much pain at the time, with a bearing-down. Omitted the opiate the two preceding nights ; repeated it again this morning.

15th. A much better night ; was cheerful, and appeared pretty well, sitting up : some waters pass with a thickish discharge at times ; she felt the child stronger.

16th. A very disturbed night ; pains and bearing-down ; supposed two or three quarts of waters, with a thickish discharge, came off in the course of the night ; and since the membranes were first ruptured, it is calculated there could not have been less than five or six gallons of waters discharged. They got vent chiefly in the night, when the patient was in an horizontal position : The child, coming in closer contract with the uterus, gave greater pain by its struggles, and occasioned the uterus to contract, consequently discharged the waters ; or the rupture in the membranes might be high up, so that the waters could not so easily get vent in a perpendicular position. There has not been any appearance of blood.

17th. A better night ; no waters ; but the thick, yellowish discharge in a very small quantity. The child was in frequent motion, but weak, and seemed to the mother low down ; now and then sharp pains in the back. For some days, she complained of great coldness in the external part of the abdomen, about the navel, which cannot be removed by hot flannels, &c. This most likely proceeds from cold taken ; which, no doubt, was the cause of the violent cramp-like pains in the back on the 12th and 13th (the weather being intensely cold.)

21st. No discharge of waters ; but the yellow, thickish discharge continues, with pain in the back and womb frequently.

24th. The motion of the child is gentle ; yet causes pain in the womb. Having a better appetite, she recovered strength, walked about the house, and was cheerful ; yet felt, at times, as if she was going to be delivered.—(Opium repeated, *pro re natâ*.)

29th. She continued getting much better in health, and seemed stronger than she had been for some

time ; ate as in common with the rest of the family ; slept better, and looked better in her face. The motion of the child still gives pain. It seems to *rub* or *grate against the womb*, (so she expressed herself.) The yellowish discharge continued ; she appeared to herself sometimes very big, at others quite small. This may be occasioned by the child being higher or lower. The cold complained of in the belly has left her.

31st. In good spirits ; but in consequence of a fire a few doors off, the preceding day, she had an hysterick fit; yet no ill effects followed. The discharge as usual, thickish and yellow; frequently felt the child, but only in a kind of fluttering motion, very different (she observed) from what she used to feel in her former pregnancies, when the waters had not been discharged.

1802.—Jan. 12th. Continues in pretty good health, excepting slight colds affecting the head, face, and throat ; her appetite was better than it had been for some time. The yellowish discharge as usual ; the child's motion weak, giving but little pain.

18th. The child is stronger, and gives more pain ; the discharge as before, excepting some few red spots, which she observed this morning. She appeared again much bigger, and felt so to herself.

Feb. 6th. In good health ; walked about in the air, and rode in a coach, but complained of much pain when the child moved : The discharge now is much thicker, but yellowish.

25th. Her health good ; the child seemed to pant, struggle, and gave much pain when she walked or stood, so as to occasion much fatigued.

March 6th. Had a fall the other day ; since which there has been considerable discharge of waters, and the motion of the child has been more painful.

16th. An alarm yesterday from the cry of fire, occasioned sickness, tremblings, and great pain many hours, as if in labour, with considerable watery discharge, and the child seemed to her to pitch very low.

18th. Tolerably easy ; felt the child move again, and raised up, pressing against the stomach.

25th. For several nights past, pains came on like labour, about one o'clock, and continued the greatest part of the night, attended with the yellow watery discharge. She has taken cold, and complains of sore throat, &c.

April 12th. Pains continue, with some discharge as usual. The pains in the back, no doubt, are rheumatic.

19th. Frequent grinding pains in the back.

20th. Taken last night; about eleven o'clock, with sharp pains, which have continued more regular, and attended this morning with a discharge of mucus. These pains increased till between seven and eight o'clock in the evening ; at which time she was delivered of a strong, healthy, full grown male child : the head presented; the membranes preceded, and protruded quite to the *os externum*, when they ruptured with a pain ; about the quantity of a tea-cup full of water discharged ; the head immediately followed, and with a little assistance the child was delivered.

21st. I was informed by the nurse, there appeared to be about the usual quantity of discharge when she was put to bed, as in her former labours. On examining the placenta and membranes, I could not discover any other aperture in the membranes but that through which the child passed, in the most depending part, directly opposite to the placenta. In no one labour before, had she so good a time in getting about ; she was able to sit up the second day ; and at the end of the tenth day walked about the room. She suckles the child, and has great plenty of milk.

I believe it is not common, at so early a state of gestation, as between the third and fourth months, for pregnancy to proceed long after a rupture of the membranes. In this case, there being an unusual quantity of the waters so early, there can be no doubt they must have accumulated from time to time. It seems also certain, that the adhesion of the placenta to the uterus must have been uncommonly firm, and the make and texture of the child singularly compact; but that it should have survived the almost constantly repeated contraction of the uterus for so long a time, one cannot easily comprehend. The yellowish discharge might have been occasioned by the contents of the child's bowels being pressed out from time to time by the violent contraction of the uterus, and so tinging the waters, &c. I examined the state of the uterus, &c. very seldom, and then as gently as possible, well knowing the less this is done under such circumstances the better: indeed, it is seldom any manual assistance can be given early in pregnancy, even in cases attended with floodings. Generally, nature alone expels the contents of the uterus in abortions. The opium administered in small quantities, and frequent, no doubt, assisted greatly in quieting the pains and action of the uterus. Indeed, without it I do not conceive the life of the child could have been preserved. It may not be improper to remark, that the patient increased in size latterly, so as to be, at the end of the ninth month, about the same bulk as in her former pregnancies. She always quickened very early, (*i. e.*) about the beginning of the third month. The child is now in good health, and thrives much.

I am, &c.

JAMES HOBGEN.

Berners Street, August 18, 1802.

## FINIS.

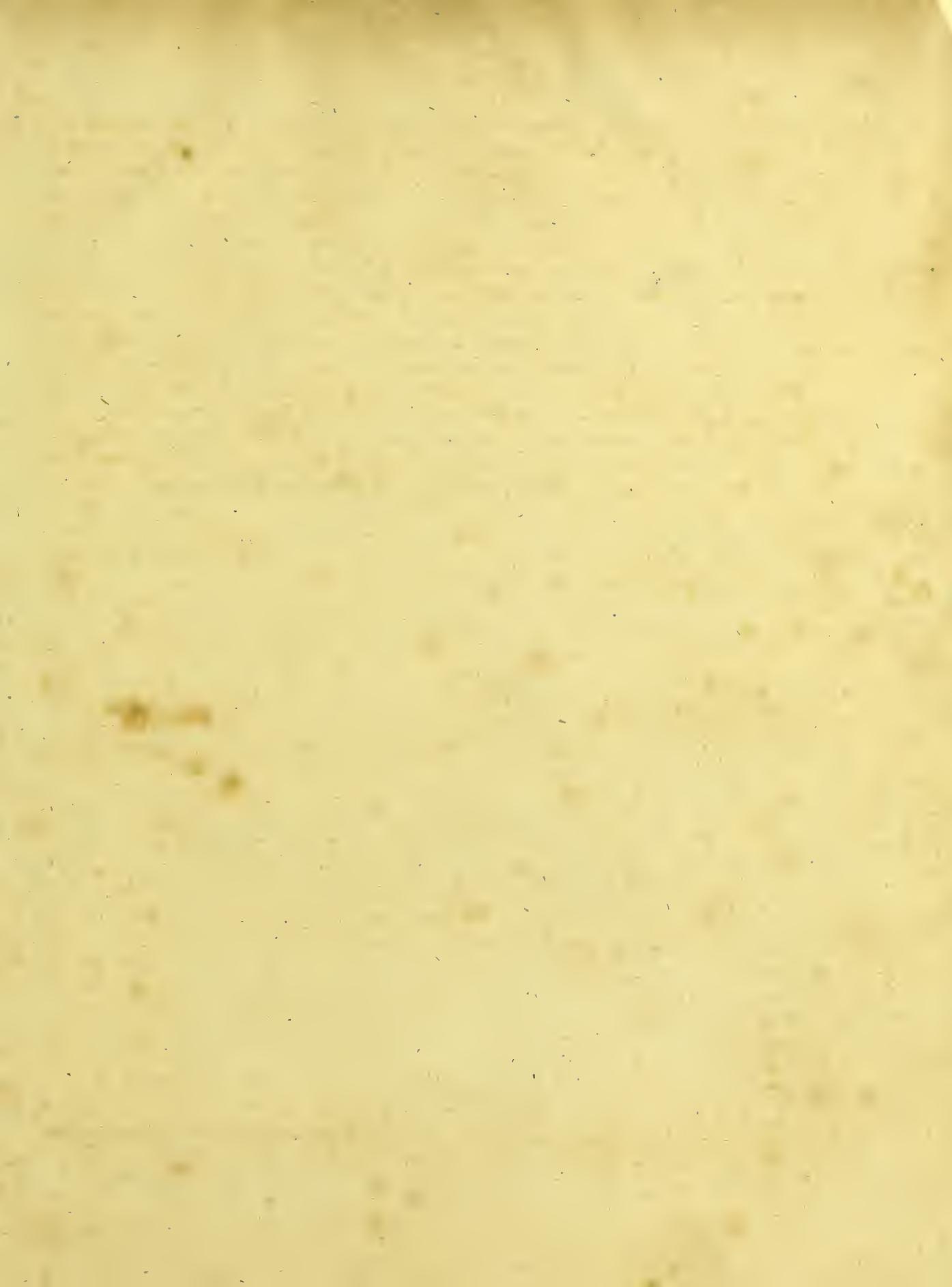
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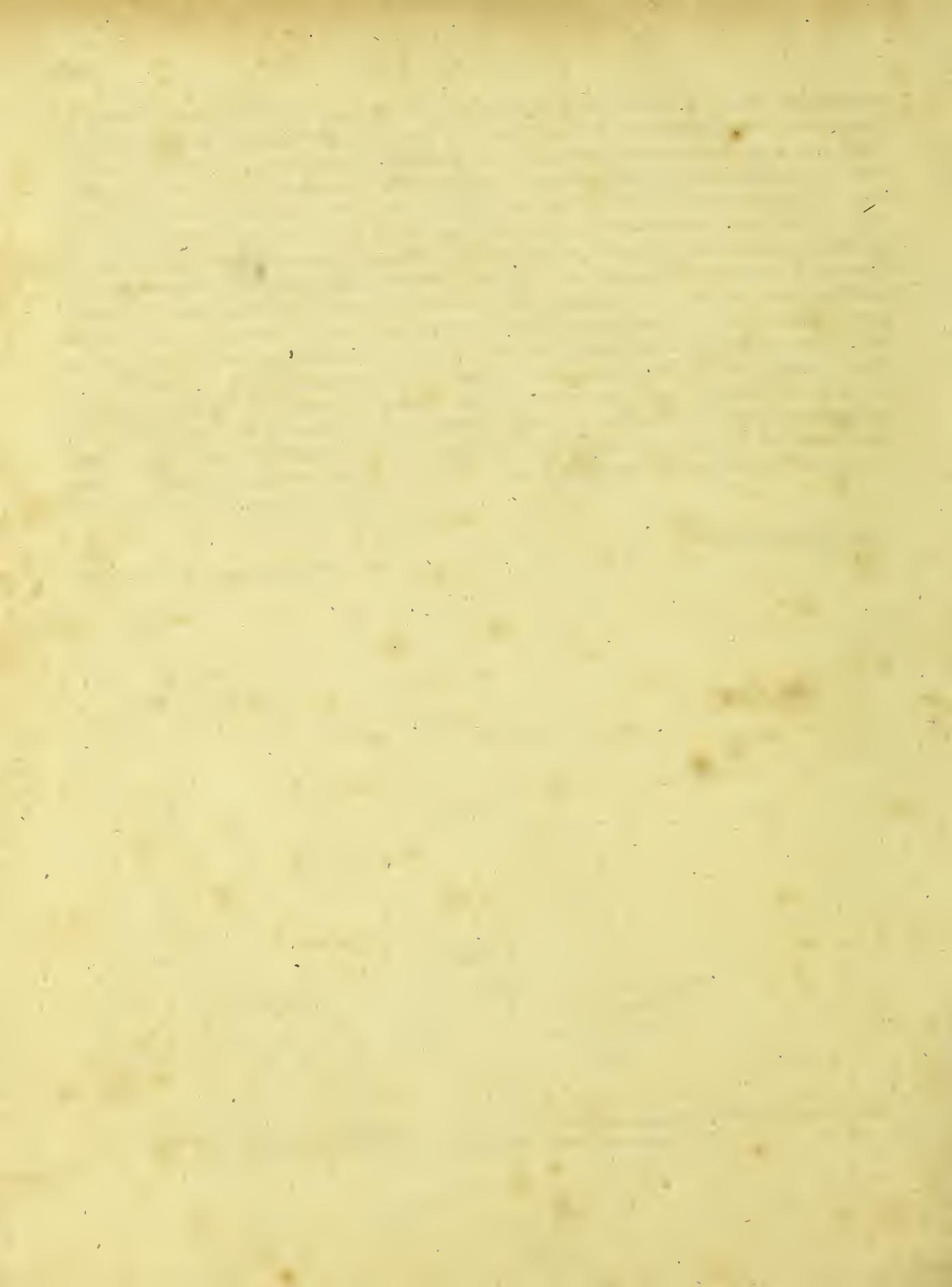
Page 16, line 19, for *unguentum cetaceum*, read, *unguentum cetacei*.

26, —— 8, — prominent — predominant.

82, —— 26, — peculiar — incidental.

102, —— 21, — hand — head,









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